SCIENCE FICTION
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SCIENCE FACT

JANUARY 1974 60c 30p
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Guest Editorial by
Robert A. Heinlein

THE HORUS ERRAND
William E. Cochrane

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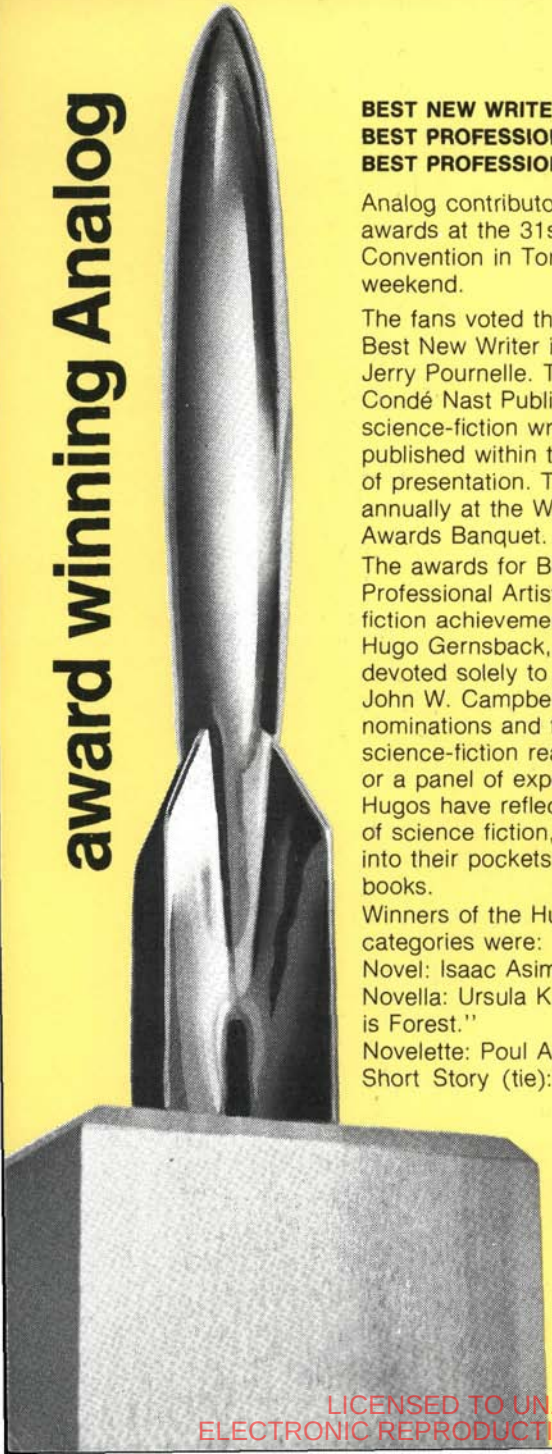
award winning Analog



BEST NEW WRITER . . . JERRY POURNELLE
BEST PROFESSIONAL ARTIST . . . KELLY FREAS
BEST PROFESSIONAL EDITOR . . . BEN BOVA

Analog contributors picked up the lion's share of awards at the 31st World Science Fiction Convention in Toronto over the Labor Day, 1973 weekend.

The fans voted the first John W. Campbell Award for Best New Writer in the SF Field to Analog regular Jerry Pournelle. The award, sponsored by The Condé Nast Publications, Inc., is open to all science-fiction writers whose first work was published within the three years preceding the year of presentation. The award will be presented annually at the World Science Fiction Convention's Awards Banquet.

The awards for Best Professional Editor and Best Professional Artist are part of the series of science-fiction achievement awards called "Hugos" after Hugo Gernsback, publisher of the first magazine devoted solely to science fiction. The Hugos and the John W. Campbell Award are unique in that the nominations and final selections are made by science-fiction readers rather than authors, editors, or a panel of experts. Thus, over the years, the Hugos have reflected the feelings of the consumers of science fiction, the people who finally dig down into their pockets and pay for the magazines and books.

Winners of the Hugos in the other "Professional" categories were:

Novel: Isaac Asimov for "The Gods Themselves."
Novella: Ursula K. LeGuin for "The Word for World is Forest."
Novelette: Poul Anderson for "Goat Song."
Short Story (tie): R. A. Lafferty for "Eurema's Dam."
Frederik Pohl and C. M. Kornbluth for "The Meeting."
Dramatic Presentation: "Slaughterhouse Five."

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Next Issue On Sale January 10, 1974
$6.00 per year in the U.S.A.
60 cents per copy
Cover by Kelly Freas

Vol. XCII, No. 5 / JANUARY 1974

NOVELETTE

THE HORUS ERRAND, William E. Cochrane 12

SHORT STORIES

THE ASTOUNDING DR. AMIZOV, R. F. DeBaun 85
THE HOLE MAN, Larry Niven 93

SERIAL

THE SINS OF THE FATHERS, Stanley Schmidt 106
(Conclusion)

SCIENCE FACT

SPACE PROBE FROM EPSILON BOÖTIS?
Duncan Lunan 66

READER'S DEPARTMENTS

GUEST EDITORIAL, Robert A. Heinlein 5
THE ANALYTICAL LABORATORY 89
IN TIMES TO COME 105
THE REFERENCE LIBRARY, P. Schuyler Miller 152
BRASS TACKS 157

Editorial and Advertisin offices, Conde Nast Build ing, 350 Madison Avenu New York, New Yor 10017

Subscriptions: Analo Science Fiction/Scienc Fact, Box 5205, Boulde Colorado 80302

...tion, Science Fact is published monthly by The Conde Nast Publications Inc., Conde Nast Building, 350 Madison Avenue, New York, New York 10017. Perry L. Rus-
...tion, President; Fred C. Thormann, Treasurer; Mary E. Campbell, Secretary. Second class postage paid at New York, N. Y. and at additional mailing offices. Subscrip-
...tions, in U.S., possessions and Canada, $6 for one year, $10 for two years, $13 for three years. Elsewhere $9 for one year, $16 for two years. Payable in advance.
Single copies in U.S., possessions and Canada, 60¢. For subscriptions, address changes and adjustments, write to Analog Science Fiction/Science Fact, Box 5205,
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GUEST EDITORIAL

ROBERT A. HEINLEIN

Channel Markers

Editor's Note: On April 5, 1973, Robert A. Heinlein delivered the James Forrestal Memorial Lecture to the Brigade of Midshipmen at his alma mater, the U.S. Naval Academy at Annapolis. While every science-fiction reader knows Heinlein through his stories, where his characters often speak from many different points of view, here he speaks in his own person, about writing, about science fiction, and about the things in life that he considers to be most important.

Introduction by the Midshipman "Six-Striper": . . . a speaker who is not "A Stranger in a Strange Land."

Mr. Heinlein: Thank you, Brigade Commander—and "It's Great to Be Back," too!

Admiral and Mrs. Mack, Ladies and Gentlemen, Young Gentlemen of the Brigade—

For years I have refused all requests to speak . . . but when I was asked to speak at my alma mater I accepted at once—and caught myself in a bight, for I learned that I was expected to talk about science fiction, its impact on American society, and my experiences concerning it.

But I never discuss my stories and I am still more reluctant to discuss the work of my colleagues. As for the impact of speculative fiction, I am too close to the center to judge. And how can an author have experiences in connection with his work? He works alone, no company but a typewriter. About all that could happen to him would be an earthquake.

Let's see if the subject is something you want to hear about—How many of you ever read science fiction? Hands, please.

All right, I'll talk about science

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fiction . . . but I'll get in a few licks at the end on what *I* want to talk about.

Now who of you here tonight has read anything that I have written? Hands up again, please.

Thank you.

One more datum, please— How many of you are interested in writing for publication? May I see hands again?

Oh, come now, you're not being frank with me. Thousands of contacts with the public over more than thirty years cause me to estimate the number of aspirant writers among the adults of this country at fifty percent—or more. It is impossible that a group this large, all adult and all literate, could have so few in it who want to write. I can tell you in less than fifty words how to get published . . . but if you are too shy to admit that you are interested in writing and publishing what you write, I won't bother.

Let's try again. How many are interested in writing for publication? I won't talk if only a handful want to hear. Let's see hands.

All right, that's enough to justify discussing it. The rest of you are invited to dope off and think about the gatefold in *Playboy*.

Five Rules for Success in Writing:

First: You must *write*.

Second: You must *finish* what you write.

Third: You must refrain from rewriting except to editorial order.

Fourth: You must place it on the market.

Fifth: You must *keep* it on the market until sold.

That's all. That's a sure-fire formula for getting anything—anything at all!—published. But so seldom does anyone follow all five rules that the profession of writing is a soft touch for those who do—even though most professional writers are not too bright, not too wise, not too creative. For these rules work in series, not in parallel. If you bilge any one of them, you bilge completely—and your writing will not be published.

Let's see how they work. I said that half of the adult, literate population claim to want to write. Call that half of a hundred million. So we start with fifty million people.

Nine out of ten who *say* they want to write never get around to it. That leaves five million.

Not more than one in ten who start to write something ever finish what they start—finish it completely: corrected, typewritten, double-spaced, one side of the paper in standard format. That leaves—at most—five hundred thousand.

Of those who do finish a manuscript, nine-tenths of them won't leave well enough alone. They start fiddling with it, rewriting, polishing, changing . . . until they have squeezed the life out and lose interest. Now we are down to fifty thousand.

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Most of these survivors don't send their work off to an editor. Oh, no!—that involves the chance of failure and they're not ready to face *that.* Writers—*all* writers including scarred old professionals—are inordinately fond of their brainchildren. They would rather see their firstborn child ravaged by wolves than suffer the pain of having a manuscript rejected. So instead they read their manuscripts aloud to spouses and long-suffering friends.

This leaves only five thousand survivors who actually send their work to market.

So off it goes to an editor—

—and back it comes with a rejection slip.

This is very painful to the ego.

The usual amateur stops right there. He is so discouraged that he puts away his manuscript and forgets it.

Or he might send it out once more. The second rejection is even more painful than the first. It takes real stubbornness to send it out a third time. Only a handful will send a manuscript out four times. A still smaller number will keep on sending it out, as many times as necessary, until it sells.

For it *will* sell. If a manuscript has any merit at all and its author keeps on trying, eventually it will sell. Some editor will find himself facing a deadline with blank pages still to be filled. He reaches into the slush pile and pulls out this manuscript that he recalls as being bad but not utterly hopeless, rereads it, and thinks, "Well, if I cut out that useless first page and start with the action—then tighten up the ending, cut out all those adjectives—then bluepencil this description of weather—it would just about fit. Peggy! Send this bloke form letter number two, the one that lets me cut to fit—and add that paragraph about how we would like to see more of his work but not more than forty-five hundred words."

So now our hopeful is a published writer . . . and if he has been as stubborn in continuing to write as he has been about keeping his work on the market, he will have some manuscript that has been rejected several times but which he finds he can cut from seven thousand words to forty-five hundred—and does and finds that the cut version reads much better . . . and thereby begins to learn a most important lesson in the writing trade: that any manuscript is improved if you cut away the fat.

This last of five go-no-go gauges has eliminated another ninety percent. We started with fifty million; we now have only five hundred survivors.

These figures are substantially true. A few years ago my guild, the Authors League of America, made a survey to locate all professional writers. We found only four hundred who stated that they supported themselves and their fam-

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ilies solely by free-lance writing. All the others had some other basic income.

Let's allow for population increase and for any the survey missed—not many, the real professionals have their names plastered all over the newsstands; they can't hide. So call it a maximum of five hundred.

Only five hundred making their livings at free-lance writing out of a population of over two hundred million. Less than one in four hundred thousand.

Yet I said that free-lance writing is a soft touch. It is. Do you know of any other occupation in which a man can be his own boss, with no capital investment, no employees to worry about, no payroll to meet, no hours to keep, no need to meet the public other than when and where and how it suits him, live anywhere he wants to, dress as he pleases, work only three or four months out of the year, take long, long vacations—and still make a very comfortable living?

What he *does* have to do is to follow those rules, every one of them, every time, without fail—and keep on following them, for year after year after year.

It means working when you don't feel like working, even though there is no one to tell you that you must. It means following these rules even when you are disheartened by a long string of rejections and your head aches and your stomach is upset—and your wife thinks you are a fool not to look for a job. It means refusing to see your best friends when you are writing. It means telling your wife and children to get out of your study and *stay* out! It means offending people who can't understand that writing must *not* be interrupted—not for dinner parties, not for birthdays, not even for Christmas. It means getting a reputation as a bad-tempered, self-centered curmudgeon—and resigning yourself to living with that reputation no matter how eagerly you want to be liked—and writers do want to be liked, else they would not be trying to reach people through writing.

I probably haven't convinced you that those five rules are all it takes. But they are the business rules of anyone who makes anything and offers it for sale. Take a cabinetmaker specializing in handmade furniture. He must make furniture and he must complete each piece he makes. He never tears up a chair he has finished because he has thought of a better design. No, he offers that chair for sale and uses the new design to build another—this is the "no rewriting" rule.

Having finished a chair, he puts it on display and keeps it there until sold. At worst, he'll mark it down and put it in his bargain basement—and a writer does the same thing with a manuscript that

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fails to sell to high-pay markets; he puts his cheap-rate pen name on it and sends it to the endless low-pay markets . . . with no tears; words are worth whatever the market will pay—no more, no less.

A beginner finds hard to believe that no-rewriting rule. A myth has grown up that a manuscript to be suitable for publication must be rewritten at least once.

Utterly false!

Would you refry an egg? Tear down a freshly built wall? Destroy a new chair? Ridiculous!

This silly practice of rewriting is based on the hidden assumption that you are smarter today than you were yesterday. But you are *not.* The efficient way to write, as with any other work, is to *do it right the first time!*

I don't mean that a manuscript should not be corrected and cut. Few writers are perfect in typing, spelling, punctuation, and grammar. Most of us have to go back and correct such things, and—above all!—strike out surplusage and fancy talk. The manuscript then needs to be retyped—for neatness; retyping is not rewriting. Rewriting means a new approach, a basic change in form.

Don't do it!

A writer's sole capital is his time. You cannot afford to start writing until you know what you mean to say and how you mean to say it. If you fail in this, it is not paper you are wasting but your sharply limited and irreplaceable lifetime.

An instructor in English who requires a student to rewrite is reinforcing the worst possible habit in the use of language, the inability to say it right the first time. If the student thus abused is a midshipman, he may wind up the sort of officer who can't write a letter or a report without making half a dozen false drafts. The Navy does not have time for such nonsense. Efficient use of language is an indispensable tool of the naval profession. Under battle conditions it can make the difference between success and disaster.

The most valuable course I took here was one called "Order Writing." Its emphasis was on clarity. When a section met, each midshipman drew a slip which outlined a situation and told him what he was—task force commander, ship's captain, whatever. He had a few minutes to study it, then was required to write on the blackboard an order to fit the situation, then he was under fire from all sides. No rewriting, no second chance—if the instructor or any midshipman in the section could find any plausible way to misconstrue that order, his mark for the day was zero. Otherwise it was 4.0—nothing in between.

It was a *wonderful* course!

I think I have time to say one word about classes in "creative writing."

continued on page 166

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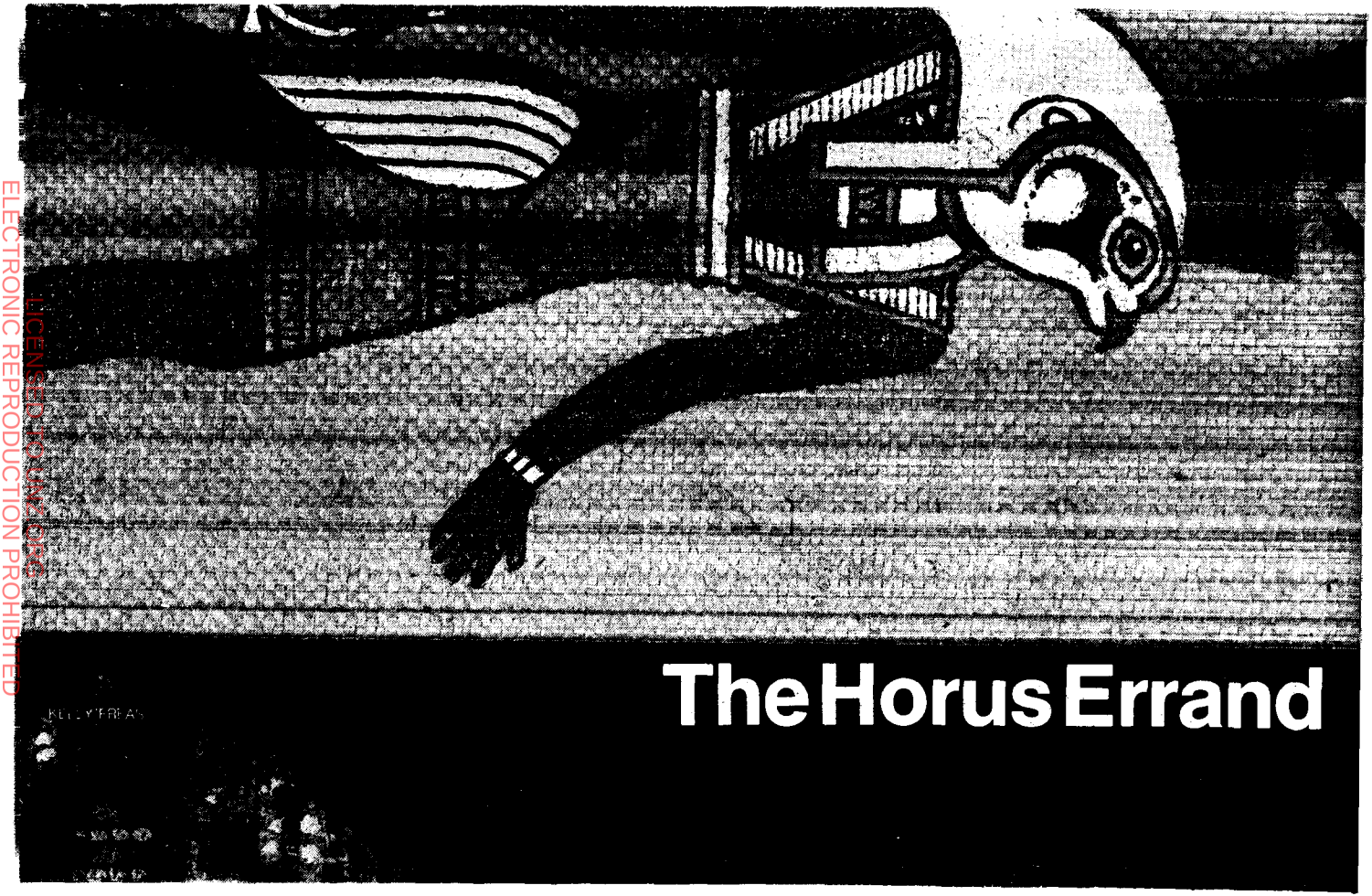

The Horus Errand

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An engineer's hell is when everything checks and nothing works. When a dying man fails to reincarnate but has not fully died . . . where is he?

WILLIAM E. COCHRANE

John-Michael rolled the squad cruiser up the drive and parked it to the right of the big covered entryway. His partner, Jeff Matthews, cut off the roof flasher. The ambulance and a doctor's car were already parked ahead of them. The next vehicle coming up the drive would be a hearse and it would not need the flashing lights to find the house of Randolph Hertigen-Ames. The house was alone in the middle of its five-acre green belt and the mortuary people would be coming after a dead body. They always found those, lights or no lights.

The Hertigen-Ames house was on a rise of ground just beginning to call itself part of the north watershed of the San Gabriels. The house faced the desert and, crossing in front of the property some five kilometers away, the freeway ribbon. The freeway stretched off to the east toward its junction with the Cajon Throughway. To the left, west, the massive Lancaster Megacenter Arcology bulked as a silhouette against the flaming red-orange of the setting sun. Pyramidal in shape, far outstripping the concept of any Theban architect, the city of Lancaster nevertheless cast an Egyptian aura over the otherwise prosaic Mojave desert. A promotional truism, infinitely repeated by real estate and city publicists.

At sunset, as now, the emotion-loading of the Egyptian imagery conjured forth conceptions of the sun-god *Ra*, sinking into darkness behind the pyramid's mass. Everyone who lived around Lancaster Arcology was an amateur Egyptologist, including the patrolmen, and the symbology was apparent enough to them that they sat a few moments and watched the departure of *Ra* in the setting sun.

The near sides and corner of the Arcology's pyramid were darkened into shadow by the sunset behind. The aircraft warning lights were brilliant ruby flashes, even against the sun, and here and there fluorescent eyes began to peer out of the dark as automatic lights in the outside residence-suites came on against the nightfall. A shimmering river of red taillights marked the entrance of the freeway into the

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sixth-level dispersion-ramp fan. This was a location the patrolmen found easily. Behind that freeway junction on the sixth level was the Police Central Barracks from which they had been dispatched just thirty minutes ago. It was a spot of work-a-day reality that dispelled the Egypto-mystique.

"Let's go!" Matthews snapped, and opened his door. The sound was startling, echoing in the roofed entry, but it brought his partners back to life with a jump.

John-Michael got out of the cruiser as Jeff came around the front, and started across the drive with him. They both slowed down to wait for the third man they'd been carrying in the back seat. Without seeming to make an effort, they maneuvered him between them and crossed the drive as a tight, protective trio.

John-Michael and Jeff were wearing their equipment belts, but in addition to the usual police equipment, their belts carried kit pouches with medical accessories. They had put on their duty helmets—for the comm-link to the car and the police computer-center—and they still carried side-arms, but they'd left the long wooden riot sticks in the car. It was their job to physically protect the third man from all danger and violence, but there were limits. They could shoot a man, gas him, use feet or fists, but they couldn't hit him on the head with a riot stick. That was out, when riding with a registered telepath who might be tuned in to the hitee's mind at the time.

Wynn Stanford, the third man on their team, didn't look as if he needed protection in any kind of company. He was only slightly shorter than the other two, with the wide-shouldered, thick-torsoed build of a professional football guard. He moved with an unusual, deft confidence and an awareness that was most noticeable when you could see his eyes. The two patrolmen were assigned to protect him during those times when he couldn't be expected to use his own physical strength to get out of trouble—when he was practicing his profession.

Wynn Stanford was a registered Officer/Telepath, and the work he did with his mind was important enough to rate him the two-man guard together with the white-and-gold uniform that proclaimed his membership in the select Officer/Telepath Division. The uniform represented the quasi-medical aspect of his duties.

The patrolmen who were part of the three-man team had been trained together since the Academy and Medical Specialists School to work as a unit, but this was an O/T call. Wynn Stanford was the registered Officer/Telepath and he had the duty; he was out here to meet a dying man.

The three officers went up to the door and stood in front of its ID

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scanner. Jeff pressed the doorplate and said, "Police. We were sent for and are expected." The scanner screen light died, the door hummed and opened. Somebody was overriding the usual computer search to see if they were expected and programmed into the door's "open-to" list. Hertigen-Ames' butler had been watching for the squad car; he was standing by the door.

John-Michael and Jeff went through the door first in their trained reflex of protecting Wynn. John-Michael crowded the butler, under the pretext of showing his ID card, and Jeff fanned out a little to the right to cover the stairway and a set of doors behind the butler to the right. Nothing developed and the moves were not obvious. John-Michael was polite and the hall was clear.

The butler didn't even notice the ID or the tactics. The black-and-silver police uniforms on the two armed officers *were* obvious, and Wynn's startling white-and-gold blatantly proclaimed *his* status and profession. Their abrupt, patterned entrance through the door was evidently well within the butler's concept of normal police behavior.

"Mr. Hertigen-Ames is in his room on the second floor," the butler said, his poise completely unruffled. "I have been instructed to take you directly up there." He let the front door swing closed, giving it a slight push to do so, making no move to get around John-Michael. "The family would like to see you . . . if you will. They would like an informal report when you have finished. They are not on the premises, but a conference-screen call is being held for your use. If that is satisfactory?"

Wynn started a frown. California statutes prohibited the presence of any heirs at a registered death. That was one of his police functions. But a conference call, that would be O.K. They were entitled to know the results of his work.

"Thank you, Jenssen," Wynn said. "I can do that. Now, let's get upstairs, please. I don't think we have much time."

"No, sir . . . I mean . . . yes, sir. That is, follow me, please." Jenssen's veneer developed a small crack, closed again.

"Hear anything, Wynn?" John-Michael asked. Long ago, among the three of them, they had settled on the simple verb, *to hear,* for Wynn's telepathic talents. It was quicker than more precise, schoolbook descriptions. This part of their teamwork was Wynn's pigeon and the leadership of the trio swung over to him easily. He'd make the decisions, they'd follow.

"Not yet. But if he's as near the end as they said, his thoughts would be very weak. They always are. That's why I have to work close in, J-M. Anyway, helmets on *record,* from now on in! Is the line open to Homeplate?"

A voice, the police monitor at

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the computer center, sounded in Wynn's earphones: "Homeplate clear and listening. Recording." Jeff nodded to answer Wynn's question; John-Michael put a thumb in the air.

They followed the butler up the stairs.

"You will find the master bedroom there, to the left," Jenssen said, when he reached the landing. "I have been instructed to tell you that the maternity ward has been set up on the first floor. There is an electric elevator, to your right—to get you down there quickly. Mr. Hertigen-Ames did not permit dropshafts to be designed into his house."

"On the ground floor?" Jeff said. His question was to Wynn, asking if it was close enough.

Jenssen answered the question: "There were items of medical equipment too heavy to bring up the stairs."

"Close enough." Wynn supplied his own answer, ignoring the butler and motioning John-Michael ahead to the bedroom. "You get down there, Jeff, and get names and addresses."

"You could have said that before I climbed the stairs," Jeff griped cheerfully, heading for the elevator.

John-Michael opened the bedroom door, stepped inside and muttered: "We've found it all right."

The death room was dimly lit. The living always seemed to think the dying wanted to do it in the dark. Randolph Hertigen-Ames was lying in a gigantic bed. A small, shrunken, eighty-six-year-old shell of humanity, Hertigen-Ames wasn't dominating anybody any more; he wasn't even dominating his bed. He lay flat, his dull white face appearing gray against the pillow linen. Two tubes of an oxygen breather distorted his nose and added to his lifeless look . . . even his shallow breathing wasn't visible.

A tall, well-dressed man came out of the shadows by the door. John-Michael turned to block him, presented his ID folder and went into his short introduction routine: "Police. I'm Sergeant Savage. This is my partner, Officer/Telepath Stanford . . ."

Wynn Stanford let the words wash over his consciousness. He'd seen the figure of a man kneeling by the bedside—a priest. Things *were* far along; Hertigen-Ames was close to death indeed. His public views on organized religions were long and acrimonious. Wynn's briefing tape hadn't even included a religious notation.

Wynn walked quickly to the bedside—opposite the priest. He ignored the other people in the room, left John-Michael to conclude the police routine, and began feeling gently, insistently for the mind and thoughts of the dying man.

His technique was part probe, part calling reception—an ask-

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ing/listening net that was as soft and fragile as the feeble mind he was tuning for. He wasn't listening for thoughts. He was trying to absorb, gather, impress in his memory, the personality pattern of the old man—so that he would recognize it again when he heard it. At the same time, and even more subtly, Wynn was telling the dying brain who he, Wynn, was—planting an empathy and friendship of thought. Planting triggers of friendship that would be vitally necessary the next time Wynn contacted the dead man's mind.

Because the next time Wynn talked to him, Hertigen-Ames would be occupying the mind of a newborn baby. Helpless in the trauma of birth shock, trapped in an unseeing, newly uncontrollable body, insanely voiceless except for his screaming thoughts, Hertigen-Ames must be able to recognize the friendly aid of the telepathic link to Wynn's mind. He had to recognize Wynn, hold to the telepath, so his mind could be guided back to sanity through the reincarnation, while his infant body learned to grow, eat, see, walk, talk and become Hertigen-Ames again. The alternative was to lose the Hertigen-Ames personality forever as it fought madness in the mind of a baby—unable to communicate, confused, and at last destroyed by his new body's own living/learning/growing processes. Twenty-four hours of such isolation from adult reality would render Hertigen-Ames—old Hertigen-Ames—helplessly insane. Thirty-six hours and even Wynn's delicately sensitized net would not be able to find a trace of the carnate personality: a tragedy of final death that Officer/Telepath Wynn Stanford was sworn to prevent.

Wynn's concentration deepened as he made the contact he needed and began to build rapport and record the personality in the fleeting, darting thoughts. Thoughts that were as wispy as the old man's breath seemed, oddly enough, to be timed to his breathing—pulsing and resting, thinking and silence.

"There's something funny down here," Jeff's voice came over the comm-helmet. Wynn's ears heard it; his mind filed and ignored it.

"Go easy on the comm," John-Michael cut in. "Wynn's working. What is your condition? Emergency?"

"It'll hold until you come down." Jeff went off the air.

The vocal exchange had released Wynn from his tight empathy with the Hertigen-Ames mind. He closed off his contact peacefully, letting his recognition triggers remain and taking with him the memory-imprint of the old man's personality. He was sensitized to Hertigen-Ames and would recognize him again whenever he heard him.

The priest was looking at Wynn. Apparently he had been waiting for some sign of awareness to come

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back into the policeman's face, for as soon as Wynn noticed him, focused on his face, the priest bent forward across the bed and made the sign of the cross on Hertigen-Ames' forehead. Then he took off the purple stole he was wearing.

"I could not, in all conscience, complete the sacrament," he said, his voice soft, but with an anger in it that he would do penance for later, "with you in there. It is absolution for one life of evil, not two."

"I don't invade minds, Father." Wynn bristled at the popular view of his profession.

"But you do . . . inspire a mockery of the last rites."

"Because I can help some men prove that life-after-death is another form of life-on-Earth?" Wynn asked. "Or do you object to the Medical Police extending protection to someone that the church has given up?

"My team is a police team, Father. Our duty is to protect: to protect Hertigen-Ames during a time when only the law, and an Officer/Telepath, can protect him."

"Protection? More mockery, since you deny him the mercy of his God."

"I do not." Wynn's mind was still sensitive from his probing; he held himself away from the priest's thoughts with a solid block. He had work to do in a few hours and no time to spend chopping religious ethics. "Hertigen-Ames made a free choice when he elected for rein-

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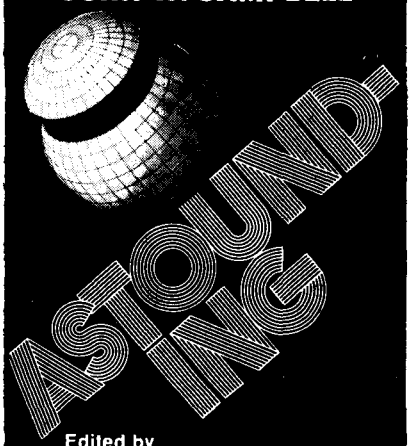

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carnation. He has arranged a computer-selected pregnancy-donor. His family has signed all authorization agreements. His affairs, this affair particularly, are in scrupulous order. No mockery is intended. His death and subsequent rebirth are now police matters, governed by the laws of the State of California.

"Oh, you can stay, Father. Your presence is welcome. But you won't be permitted to interfere. Do you understand?"

"I understand. Am I permitted to pray for the soul of Mr. Hertigen-Ames?"

"Of course, Father." Wynn sighed. He wasn't getting through the man's emotional barriers. He turned away from the bed. "And Father, pray for me too." The priest ought to respond to that level of reasoning.

"Oh? I wouldn't have thought you were religious—with your talent." The priest's cynicism gave way to his native curiosity.

"With my talent, Father, I couldn't be anything else. Except for a basic difference in definition, I suppose I hear as many souls as you do—perhaps more. Pray for me, Father." Wynn walked away from the bed as the priest began to move his hand in a cruciform blessing.

John-Michael was holding two people near the doorway. Wynn swept them with a short ID scan and used their names to prove his talent and impress them. He seemed to have an ego-need to score minor triumphs: an emotional tension because of the job ahead, it was really a sharpening of his skills, a refinement of trained reflexes in his mind, and he made no attempt to stop himself.

"Mr. Aventi, Dr. Morris. My name is Wynn Stanford," he said. "Have you given the doctor his rights and instruction card, John-Michael?"

"Not yet. We were keeping quiet because of your concentration," J-M said. He took a plastic card out of his pocket and handed it to the doctor. "You can do it now, Wynn."

"Very well. Dr. Morris, the State of California relieves you of responsibility for this patient's death and subsequent reincarnation under provisions of Public Law 1764-1213. You are hereby retained by the Police Department and appointed as a medical adviser for the duration of the patient's Phase One death. Should you decline to act or, having accepted, refuse to act as required by law, your refusal will be noted and may be used against you in any legal action. Do you accept the appointment or will you require the services of another physician to replace you?"

"I accept the appointment."

"Thank you. Mr. Aventi, as legal adviser for the Hertigen-Ames family, can advise you concerning the method of applying for your fees and filing your report—later, when

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this is over. In the meantime, the card you have been handed defines your treatment of the patient and the legal medications and drugs you may use from now on. *Do not use any other treatment!* You will attempt no methods of revival—Adrenalin, heart massage or massive surgery—to prolong Mr. Hertigen-Ames' life. He is to be permitted to die naturally and as comfortably as may be—*within the scope of that card.* Understand?

"You are legally relieved of your Hippocratic Oath—all other ethical and moral considerations troubling you, you may discuss with the priest, if you like.

"At the time of death you will be required to establish, and certify, clinical death. Sergeant Savage will provide the certificate and witness it. You are not required to establish legal death, since Mr. Hertigen-Ames has waived that status in his reincarnation application. You will, however, remain by the patient, observing, until the prescribed time and all physical symptoms of legal death are present, or may be presumed to be present by you as an informed witness. At that time, either I or Sergeant Savage will terminate your contract obligations with the State of California—except those provided by law in such cases. You will receive these in writing, or Mr. Aventi will advise you."

"I know them," the doctor said shortly.

"Good. Do you then understand each and every one of your duties and responsibilities, as I have stated them to you? Answer, 'I do.'"

"I do."

"J-M, you stay here, of course, with the doctor. I'll get down to the maternity ward. What was Jeff talking about back there?"

"Don't know. He stayed off the air."

"O.K. I'll run and see. I don't want to listen in to the maternity scene until I'm up close. It's disorienting. Mr. Aventi, you come with me, please. No one who has an interest in his estate or chattels is permitted in the room with the dying man, as you know.

"Doctor, he's your patient," Wynn concluded. He ushered the lawyer out the door.

The doctor didn't answer. He was staring at the card, trying to absorb the shock of his legal duties—the medical reorientation toward letting his patient die. A revised set of professional responsibilities were spelled out on that ten-by-fifteen plastic card. They *were* massive.

The first-floor room had been remodeled, or cleared out to provide space for full medical facilities. Two portawall divisions split the room into thirds: a hospital bed in one; incubator and supporting hardware in another; and the better part of a delivery room in the

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third. Certainly everything that could be moved out of a hospital had been moved and reinstalled here, including the personnel.

There were so many green-masked-and-gowned medics that Wynn had a hard time finding the mother. Officer Jeff Matthews was the only distinctive feature in the room. His uniform made him appear gigantic, ungainly—its black and silver a brutal contrast to the softened coverings of the hospital crew. Jeff came up to Wynn immediately and handed him the list of names. "Checked and cleared through the computer," he commented.

"Then what's wrong . . ." Wynn started to ask. At the same time he noticed what was wrong and cut off his questions as being unnecessary. There was little or no activity in the delivery room. The medical team was standing around, relaxed. The uterus nurse was listening for the fetal heartbeat, and obviously thankful of the task to relieve boredom. The doctor was tapping his stethoscope against his teeth, only his mask keeping it sterile. The anesthetist was tapping his dials, but none of his equipment was in use.

The mother-donor was on the table, but lying relaxed and comfortable, her body mounding the green sheets, her legs still flat on the support extension. She might as well have been in bed. *She certainly wasn't in labor.*

Hertigen-Ames was minutes—seconds—from death and she wasn't in labor. Something was horribly wrong.

Wynn stiffened. With a cold block of panic on his conscious thoughts, he probed the mother. He kept his net light, caught the double thought pattern he expected: the strong, vital wash of her personality, dulled on the edges by the drugs they'd given her; the flat, no-thought, presence of the baby . . . He jerked away from that contact. The baby was still alive, that was all he wanted to know. He didn't want to risk printing the pattern of his own personality on that unwritten mind. He listened to the mother instead, found the effort-and-pain memories high in her consciousness and withdrew. She had been in labor, still was; her contractions had merely ceased for a while. The relaxed attitudes of the green-clad team said that, medically, she was in good shape. *But everything else was still all wrong!*

"How long have things been like this, Jeff?" he asked vocally. His listening had taken only seconds.

"Since I came in, Wynn," Jeff said. "I got that dope from the labor nurse, called it in and got a readout. The mother-donor, Mary-Lewis Saunders, moaned once or twice, but nobody got excited. Wynn, my Lois did something like this with our third—the boy, Kevin. She had a long labor, just start and

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rest—a very long time." Jeff was the unofficial specialist of Wynn's team. His brood of five kids gave him a weight of expertise that their training sessions and intern duty couldn't match.

The doctor looked up at the sound of the voices, frowned to be disturbed at his tooth tapping and came over. The fact that he left his patient told Wynn more than he wanted to know, confirmed the dire emergency on hand.

"We are not quite ready for you yet, Officer," the doctor said inanely. "Her labor has begun to slow down. But it's quite normal. Still quite normal. She's in no danger."

"Absolutely nothing's normal, Dr. Warner," Wynn said. "This pregnancy was computer-predicted for delivery, now—within the minute. I want to know why she isn't delivering and what you intend to do about it. You have thirty seconds to tell me. Start!" The only thing gentle about Wynn was his telepathic talent. His face, with heavy eyebrows, wrinkles and muscle patterns around his eyes and mouth that suggested anger, combined with his helmet and uniform to make him appear menacing and hard. He kept his police personality hard and inflexible—used it, as now, as a weapon.

"Ah . . . I'm just the obstetrician, Officer. Women frequently make mistakes in timing. Happens all the time."

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"You have had her in your care for the last six months. Your tests and tissue samples were fed to the police medical computer. Its prediction was based on that data, Doctor, not on a woman's whim. Stop evading and brief me! You have twenty seconds."

"There is nothing to brief you about," the doctor said. "She is in labor. The baby is alive and well. The mother is healthy and has good strength. We will just have to wait."

"You are aware that this woman is a reincarnation mother-donor?" Wynn kept at him. "That there is a man upstairs, dying?"

"Yes, of course," The doctor looked back at the patient. "But it

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may be several hours yet before the baby . . . I could induce . . ."

"No! You are specifically forbidden by law from doing that." Was the man a total incompetent? No, he had to be rated high to have gotten this job. Hertigen-Ames would have screened for the best, or his lawyer, Aventi, would have.

"Very well, Doctor. Your time has run out." Wynn made his decision. They had to be ready for Hertigen-Ames' death—ready any minute now to deliver the unborn baby, when Hertigen-Ames' personality filled its mind. "This is a police matter, now. You will continue as medical adviser, but I will direct your actions. You are relieved of responsibility and will do as I say."

"I will not! This is my patient."

"Doctor, she is not your patient and never was. If you think so, I suggest you reread the regulations you were given when you contracted to come here and assist in this delivery. They are specific statutes of California law, Doctor. My sergeant and I are empowered to enforce them. You *will* assist us. You have no recourse at this point. I suggest you look at Sergeant Matthews."

Jeff had his gun out and thumbed off the safety with an obvious gesture.

The silence in the delivery room was immediate.

"I want you to prepare for an immediate Caesarean Section. Do not begin it until I order, but prep the patient." Wynn turned his head to the anesthetist. "Take her under now, as fast as you can," he ordered.

"But you can't . . . it's not indicated . . ." the doctor sputtered. "Surgery would be unnecessarily drastic."

"I can and will. Drastic and brutal if necessary," Wynn said. "Both Sergeant Matthews and I are licensed for this particular surgery, Doctor." *Licensed, but schoolroom practice and one time as an intern isn't skill,* Wynn thought. *Jeff's gun wavered a little at that, too. We both hope my bluff works, heh, Jeff?* "Will you assist, or must we do it without you?"

"Move it, Doc!" Jeff stuck in a growl to jar the medic's decision.

The doctor jerked physically, changed gears mentally, and moved toward the delivery table.

So did Wynn. He noticed that the labor nurse was already rearranging the drapes over the patient's abodomen and thighs to expose the incision area and was swabbing a skin disinfectant. *Good, at least the nursing team is top quality.* Then he was listening and disregarded the people around him. Jeff would hold control; Wynn's job was elsewhere.

He listened for the baby—lightly, just touching the blankness of the no-thought surface, with his sensitivity net delicately tuned to Hertigen-Ames. Too much and he would pick up the dying thoughts from

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upstairs. He had to maintain a feather-light scan, so as to be able to detect the instant Hertigen-Ames appeared in the infant's no-thought.

Jeff moved up beside the mother's head and placed the plastic cup of a retinal-pattern scope against her eyeball—thumbed the TRANSMIT button. He reversed the scope, clipped the blood sampler over her earlobe, drew the sample and watched carefully as the blood slid into the miniature analysis slides of the computer cassette, rocking it slowly to fill each slot evenly, waiting for the reactant color changes. Then he slipped the cassette into the scope's reading slot, punched TRANSMIT again, counting to himself. Finally he ejected the blood-sample square, signed it, dated it, and said, "Emergency ID. Make and crossmatch to: Mother-donor, Saunders, Mary-Lewis." He put the cassette and scope away in his belt kit. He had been talking on a direct comm-link to the central computer, doing his part of the police routine. Somewhere, a mistake had been made in the timing of this pregnancy. As a first approximation the idea of a substitute mother-donor had occurred to Sergeant Matthews. He was checking it out.

There were other things to be done, too. Wynn backed away from his probe, briefly, and thumbed a signal button on his helmet.

"Wynn Stanford to Homeplate," he said vocally, transmitting through his helmet. "Code 805. Repeat: Code 805. Airlift an O/T team in here for backup. Play them my helmet tapes on the way. Wynn out."

Jeff's eyebrows went up. His closeness brought his surface thoughts across to Wynn, though Wynn made no effort to hear them: *Officer needs assistance! Wynn had never used that before. He and J-M were supposed to see that the telepath didn't get into spots where the call usually went down. This sure didn't look like one. What had pickled?* He increased his alertness; warning a nurse away from Wynn with a shake of his head when she came up with a sterile mask and rubber gloves. Wynn was back at his listening and Jeff resolved that Ol' Doc Warner was going to operate, if he had to do it with a 375 in the back of his neck.

Wynn laughed silently. The protection those two men gave him was one of his main ego-security anchors. They were a great team.

"ID complete," his helmet announced. Jeff would be getting it too. "Saunders, M, hyphen, L. Positive. Mother-donor contracted Hertigen-Ames. Case 14297457. Pregnancy predicted 4/7/85: 19:45 GWT."

One loophole plugged: Wynn had the right mother-donor. But he still had the wrong predicted time. He tuned for the baby again, listening with his delicate probe, backed and overlaid with a block

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holding his own personality away from the unborn—waiting and waiting.

The uterus nurse, mistaking his stance and abstraction for worry, said quietly: "Fetal heartbeat, 145." Wynn ignored her, only marginally aware that she had spoken. Dr. Warner moved up beside the nurse, held his hand out to one side and said: "Skin scalpel!"

"Hold on, Doc!" Jeff interrupted. "Don't do anything—until Wynn gives the word."

The instrument nurse poised her hand over the tray, then drew it back under the sterile flap of her gown. Dr. Warner glared at the patrolman and pulled his hand back too.

Wynn continued listening, hearing nothing; his sensitivity net undisturbed.

"Jeff? Wynn?" John-Michael's voice was soft on the helmet circuits. "That's all up here. We've just lost the old man: breathing stopped; heart action, zero. The doctor says it's clinical death."

"We understand," Jeff acknowledged. "You have clinical death. Stay there until the doc can sign for legal, then come down and help. You might guide the backup team in to us, so they don't go charging upstairs."

"The O/T will find Wynn. I'll be down."

Wynn became alert, even more keenly alert, at the notification of Hertigen-Ames' death. Now he would hear something. In a matter of seconds the blank mind of the unborn fetus would fill with Hertigen-Ames carnate.

Under ordinary circumstances the infant would be born within minutes—not more than a half hour—from the time the reincarnation happened. Ideally it should already have been born; post-birth incarnations were the smoothest. But the new infant would be happy with Officer/Telepath Wynn Stanford touching and guiding the mind of Hertigen-Ames. Soothing and reassuring, Wynn could keep the newly incarnated mind from insanity during the shock period when it learned that it was a prisoner in a body it couldn't control. Under ordinary circumstances, but these weren't . . . ordinary.

Now, he was tensely alert with his listening, waiting. He probed into and around the immature brain, staying just above the pressure of working energies that were carrying sensory impressions in and out, running the fetal body. He wanted to detect the initial impact of the incarnating mental pattern. At first sign, the Caesarean must be started. Hertigen-Ames would never last through the birth trauma of a prolonged delivery.

He spread his sensitivity net thinner and finer, holding and deepening his blocks. He waited . . . and waited.

The blank, unpatterned surface of the fetal mind drew him. It was

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a vortex, an attractive nexus for any strong personality. It sucked and tore at the fringes of his ego. A quick grab that caught Wynn, built the illusion of tumbling, tricked his balance memories into a falling recall. Momentarily he had to throw all of his skill into recovery. He'd never felt an ego-pull like this. He sought memories of anchor symbols: the shield on his badge; Jeff's calm, no-nonsense face and the magnum revolver in his hand; the warmth and love-care of Edith's hair, face, hands, body in the night; the white-and-gold globe of his duty helmet. He built them into his blocks, thickening them and drawing free of the mental calling that had trapped him. Drawing free and back behind the cushions of his blocks.

Had it been Hertigen-Ames? Wynn's thoughts streamed past alternatives. *No. There had been no recognition. No pattern at all, in fact. The calling had been a quick, millisecond rip at my ego, then I'd fought free.*

The donor's fetal mind, probably, Wynn concluded, although it was a brand new touch. He had most likely let his probing come too close to the empty ego-center of the fetus. It could happen. The unborn mind wanted to find, to build a personality with all its gene-planted drives, and Wynn had been in there—close. His pattern would imprint the bare mind as readily as Hertigen-Ames—a thing he was forbidden professionally—and by his own ethics—from doing in the slightest degree. Well, he wouldn't get careless again.

Stubbornly, with all his skills, Wynn shielded himself from that drifting void within his net and went back to his listening.

And waited . . .

He was aware, as his net touched the operating sections of the fetus, of pressure and skin sensations, which he, Wynn, read as contractions in the mother-donor. Her labor continued, or rather had resumed, but still his sensitivity net registered no sign of the Hertigen-Ames carnate mind-pattern.

He waited . . .

"Wynn! Wynn!" The voice was far away. It was audible, squawky with the rattles of the overdriven earphones in his comm-helmet. "Wynn! Wynn! Get back here. Come on, man!"

Jeff was shaking him; had turned him away from the delivery table; was holding him face-to-face and talking with the helmet volume full up. Wynn stiffened against the shaking and put his hands up to his ears. The physical motion was enough to cut out his tenuous sensitivity net and his personality shields widened out to block him completely out of the fetal mind.

The sights and sounds of the delivery room came roaring back in on him, doubly loud because of his telepathic isolation. He caught at his own sanity, fought down the

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emotions that ran violently through anger at being interrupted, fear at what had been happening to him—lost in the no-thought fetal-mind—and ended in near horror as his reasoning caught up with his whirling feelings.

"Jeff," he said, his voice starkly blank. "He didn't make the crossover."

"You want the doc to operate?"

"No! No. Don't touch her." Wynn turned his head to the doctor. "No operation," he croaked. Then: "Jeff, Hertigen-Ames isn't in there. He didn't reincarnate—at least not in this donor. Jeff, we've lost him!"

The comfortable, pulsing support of another telepathic mind washed in around Wynn. It carried no communicating thought, just reenforcing warmth; filling in the dark spots of Wynn's depression; supplying strength to his personality rhythms as they built back into control; enfolding and amplifying a rock-steady: *We're here. We're here. We're here.* An Officer/Telepath sending a duality to cancel Wynn's operational aloneness. The backup team had arrived.

The presence of the other police officers gave Wynn a crutch to hang on to: a mental stability of defined action that could occupy the forepart of his mind, while the rest recovered, began the process of forgetting that would save his sanity. Police procedure—there were things to do, and reasonably fast.

Come on in, his thought was clear and crisp.

Lewisham, Ed. He got an equally precise ID thought back. *My team. Two TAC cars are on the road. They'll seal off the house and then come up.* The door opened and a tall Officer/Telepath walked in, flanked by one of his teammates. *Tom Brooks,* was Lewisham's ID thought.

Wynn said, "Dr. Warner, you will continue the delivery in a normal manner." His voice was stronger, under control. "I repeat, a normal delivery. The mother-donor is still a ward of the State, but *you* will now be responsible for her delivery. Legal documents to that effect will be filed with your office." He turned away, before the doctor could begin an argument or discussion, and went over to Lewisham.

"Did you get enough to know what happened?" he asked, assuming that Lewisham had heard his surface thoughts while he was doing his reassuring therapy.

"Yep." Lewisham nodded. "What do you want us to do?"

"I'll need you to stay on here and monitor this birth. There is an outside chance that Hertigen-Ames, the carnate, may still make it across to this donor—although . . ." he looked at the clock. *A half-hour since the old man had died . . .* his thought raced in word patterns. *No wonder Jeff was worried. If I was*

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worried. If I was in there probing for . . .

"The time is against it," he finished, vocally.

"Then you haven't given up . . . on him being finally dead, I mean?" Jeff blurted in relief.

"No, not in the least. I'd have felt him come in and fade out," Wynn said, grimly. "I've had that happen. No, the odds are that he transferred to a more receptive donor. This one wasn't anywhere near ready for him." His voice took on a hardness. That aspect would also be looked in to. It was close to criminal.

"I'd like your team," he instructed Lewisham, "and the TAC men to take the house apart. Question everybody, including them"—he tilted his head toward the delivery team—"when they're through. Have Central Files break down your recording and run a dossier tape on everybody. If you find anything fishy, get a technical team out here and go looking for trouble."

"You won't be staying, I take it," Sergeant Brooks said. "Got a hunch or will you be at Homeplate?"

"Homeplate, unfortunately. The captain will be on top of this, since I yelled for help. It's as good a place as any to start. I've got to find Hertigen-Ames, and fast. If he's been reborn already . . ."

The four policemen were silent, each in his imagination considering the ultimate horror of their profession: a mind, trapped in a newborn brain, sinking slowly, insanely into personality loss as the disorganized signals from the infant's senses and muscles bombarded the carnate mind.

"There's one more thing I have to try," Wynn broke the silence. "A scan of the house. It's an almost impossible chance—I'd have felt it, I'm sure—but there might be another mother-donor here in another room. One due to deliver at the right time. I want to go look."

"All right. Here?" Officer Lewisham glanced at the delivery table. Wynn had been using only voice, his question was: Did Wynn want to use telepathy around the donor—or risk the mental trap he'd just left?

"Yes. I won't do that again," Wynn read Lewisham's expression as easily as if they were linked. "Ed, you can come along with me and pick up a sensitivity pattern at the same time." Now they *were* linked. *Follow me. This is Hertigen-Ames. Now, listen.*

Wynn began to expand his awareness, his hearing. He spiraled a search net around his position, moving it through the big house. He touched, and secured fleeting, surface, ID thoughts as he expanded the operating *wave front* of his search: The patrolmen . . . the delivery team . . . *block up!* . . . Aventi, the butler and the house staff . . . Dr. Morris . . . the priest . . . another blacking block . . .

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All that he could hear were accountables; nothing he wanted to hear. And he did not hear Hertigen-Ames.

The search net contracted to the surface of his mind. He wiped it off, exhaling slowly.

"TAC team's here," Sergeant Brooks reported. He'd been listening on that frequency. "The drive's posted, and a service road out the back way. You looking for a jack rabbit that might have climbed the fences? They'll have to get more men in to cover the perimeter walls."

"Negative," Wynn said, laughing. "They've corked it, I think. You might check the cars in the garage. Get the butler, Jenssen to tell you if any are missing . . . or excess.

"Take over, will you, Ed?" he asked Lewisham. "We'll go on in."

Lewisham nodded and began talking on the TAC frequency. Wynn didn't even tune to it. He started toward the door. As usual, Jeff was ahead of him, moving with his deceptive speed. Wynn followed him out into the big entry hall.

John-Michael was standing there with the other patrolman—*Bob Taller,* came the thought-ID from Lewisham. J-M was holding the metal-foil card that was Hertigen-Ames' reincarnation certificate. He lifted it slightly to display it to Wynn.

"Put it back in your book, J-M," Wynn said. "I can't sign this one off yet." He didn't want to think about where he was going to sign, either. The form had two blocks for his countersignature: one, testifying that the reincarnation was unsuccessful, turned the foil into a death certificate for the coroner's office. If he didn't get busy and find Hertigen-Ames, Wynn could see himself signing that block.

"Back to Homeplate, J-M," Jeff said quietly. "Code Two."

"*Harrumph.*" John-Michael grunted, filed the foil in his certificate book, snapped the seal, said, "So long, Taller," to the other patrolman and led the way out the front door.

The TAC men were carrying their equipment up the stairs when Wynn and his team came out, but like Taller, they acknowledged Wynn with a nod, or a hand gesture, but didn't speak. They'd been briefed on Wynn's problem over the TAC circuit, and knew they had nothing to say that could help him.

J-M took the cruiser down the drive, found the freeway on-ramp and squirted his siren to clear him across to the police lane. He lifted the cruiser on its air-fans to pull his tires off the pavement, then twisted his throttles wide open and headed for home.

"You want to call in?" he asked.

"No." Wynn tapped his helmet. "They know I'm coming. Our helmets have been on monitor since I called down the 805. Take us on in!"

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Wynn stretched his legs across the floor area of the back seat, angling them as much as the seat safety harness would let him. He tried to relax and build up some plan of action, but his mind wouldn't hold on any line of thought long enough to turn it into a decision.

This was his first experience with a loose carnate. The sense of personal failure was keen in the forefront of his conscience. *He'd lost one.* His training and professional knowledge pulled up memory patterns that told him how little control he, personally, could exert on the resurrection process. They helped him control the sense of failure, but didn't stop its self-generation.

A visual memory: the lecture projection screen showing the dispersion pattern of a loose carnate. The mathematics were clouded, but the pragmatic circle-of-effectiveness, forty kilometers across, was clear. Diamond clear, because that was his search area, over twelve hundred square kilometers of desert . . . and mountains, to search. And part of the Lancaster Megacenter!

Practically impossible . . . a physical impossibility for one O/T team. That was his main reason for calling in the Code 805. He needed the manpower backup of Homeplate, the whole Medical Police Division, to have even a hope of covering such an area. The Arcology alone was a separate legal-police enclave . . . warrants and permissions would be . . .

His eyes caught the glitter and gleam of the Lancaster Pyramid ahead. The night was full dark, now, and the Arcology was lit up with its usual fantastic display of decorative level-lights and glittering windows. Every level a blazing setting for jewels that winked and flickered in the heat-rising desert air. The somber Egyptian silhouette of sunset had turned into a fairy pyramid of lights.

Deathwatch lights for the Festival of Osiris. Wynn's mind morbidly built the Egyptian image. The thoughts flicked out of his mind at the pyramidal visual cue. He had a *Horus*-like errand, too; searching for the carnate—*ka-spirit*—of Hertigen-Ames who was at this moment—to maintain the image—standing in the Court of Osiris having his heart weighed. Wynn smiled a little at his foolishness. At least he didn't have poor *Isis'* problem. When he found Hertigen-Ames the carnate would be in one piece, not scattered all over, a part here, a part there. And he would be already resurrected, without mummification or rites. Modern reincarnation was ahead of Egypt in that respect.

Another visual image flicked up: *Horus* the Child God, was a seated figure with his finger to his lips for silence.

That was what Wynn had faced

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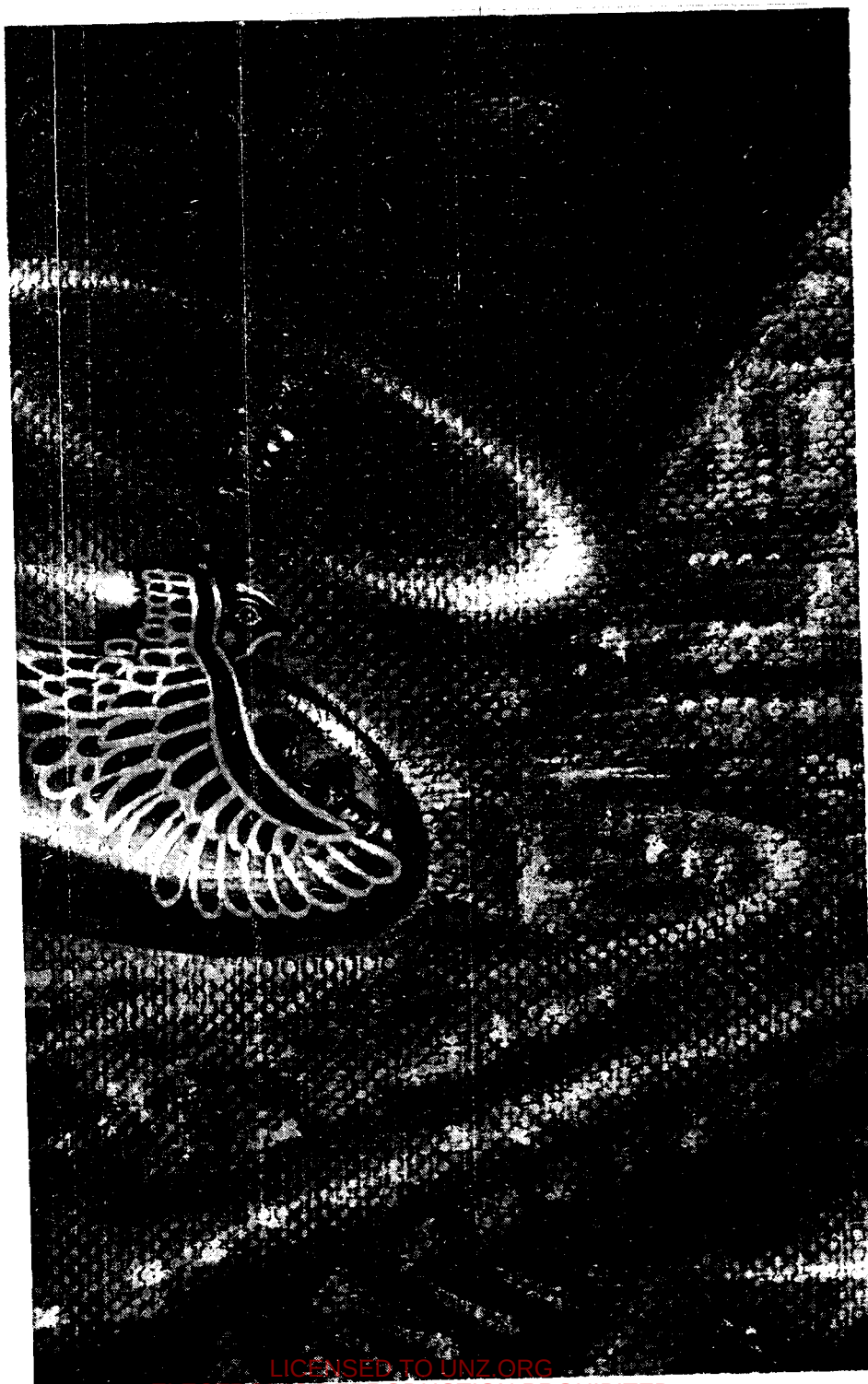

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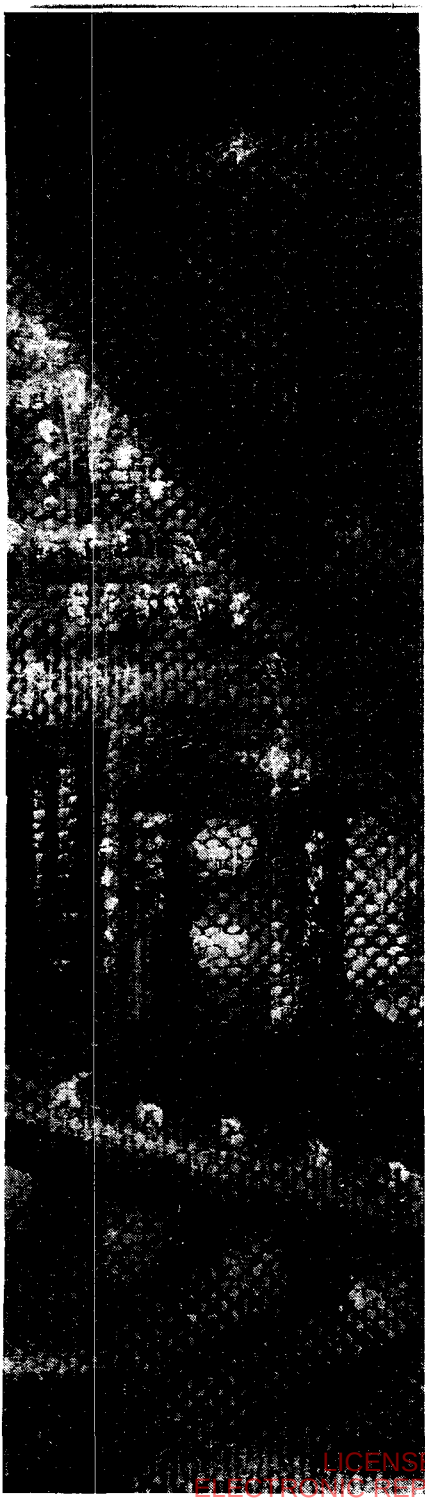

in his listening to the donor-infant's mind—silence. The foolishness of his imagery fled, his depression swelled.

He jerked himself physically upright, jamming his mind away from the morbid channel.

He punched his signal switch on the side of his helmet with enough force to tilt his head. Jeff turned to look, attracted by the sudden movement in the back seat.

"Wynn Stanford to Homeplate," Wynn said, his voice overloud. "I want an instruction sent up to Legal." He didn't wait for them to acknowledge. Hertigen-Ames' house was only twenty-odd kilometers out of the Lancaster Arcology—the patrol was almost at the Fan ramp—and reception would be no problem. "I know there's no one there this time of night, but put it on their steno-recorder—hot! I need the clearance work started to get the Saunders mother-donor released from contract and the child, when it's born, transferred back to their parentage. Send along a copy of my helmet tapes, so that they will pick up on the complications. It's not like a standard terminated reincarn. The Hertigen-Ames contract should have some liability for the mistiming and the expenses—so the Saunders don't get stuck for them. Maybe compensation, besides."

"Homeplate, here. Captain Merrit. I agree, Stanford. The Inducement to present the child for reincarnation was financial security. Compensation should be in order.

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Legal ought to be warned that they're going to be up against Aventi, too. Although I suppose they'd know that. Anything else?"

"No. I'll be there in five." He'd only called in the request from his helmet because he needed something to break him out of his downward spiral of imagery. "I'll be in my office. Wynn out."

The darkness of the night flared with a brilliant flash of light as John-Michael took the patrol through the Fan Ramp and down into the police way, his headlights glaring off the walls as he roared into the lighted tunnel.

Wynn stacked his helmet and equipment belt in the locker behind his desk and sat down wearily. Jeff was on the phone telling something small and pajama-clad: "Get your mother, Snake. Code Daddy, Pup. Hop it!" Then he hushed the circuit. *Telling her that he's going to put in a night,* Wynn thought, looking at the clock. They were overshift and the work hadn't even started. John-Michael was copying things off his run-card into the log book of the patrol.

"J-M, will you get—" Wynn was interrupted by a policewoman who came in with a file of cassettes and a bundle of computer printouts.

"We processed your helmet tapes right off the top, Officer Stanford," she said. "Here are your printouts. They need a code title for Data Retrieval, then you'll have to sign these copies for the file. The Watch Commander wants them for a briefing."

Wynn nodded, thought a second, then lettered in on the blank line headed Police Report, *The Horus Errand,* and scrawled, *Signed but not read. Wynn S.,* on the three copies. He handed the printouts back to the girl and thanked her.

"Scare us up some coffee—and some sandwiches, will you, J-M," he said, finishing his previous sentence to his partner.

"Yes, sir!" The patrolman scooped up his helmet and slid toward the door.

"And, J-M—" Wynn caught him with a rise in the volume of his voice. "When you catch up with her . . . Remember, our helmets are still on *record.*"

J-M blushed, spun out the door, leaving Wynn with the first flash of humor he'd felt in hours.

"You were listening to him?" Jeff asked, cupping the phone in his hand to cut off its microphone.

"No need. I recognized her. He's been working on that one for a week. Doesn't act like he's sleeping with her. Trouble?" Asking actual, verbal questions about J-M's sex-habits or the policewoman's choice in bed partners wasn't prudish morals on Wynn's part. He of all people, with the O/T equipment to scan either one of the two and find out all he wanted to know, had to ask questions out of simple curiosity. Officer/Telepaths had a self-

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imposed ethic about listening in the Homeplate building—there was an actual regulation covering it, but the feeling went deeper with most O/T's. Out in the field, they would quick-scan, probe and contact fellow officers at will; using the telepathic sense as a tool, when and as needed, much as any other officer would use a gun, club, TAC radio or citation book. Here in Homeplate, the telepathic sense was turned off. Fellow policemen and fellow O/T's had privacy of mind and thought here in their working headquarters. It was a necessary refuge, both for comfort of non-telepaths and ultimate sanity of telepaths. In Homeplate, as far as listening went, Wynn was off the job. Applied to pretty policewomen, the ethic didn't stop his curiosity, but it kept him from snooping.

"You bet," Jeff answered his, "Trouble?" with a leering grin and a finger-cutting-the-throat gesture. "Her name is Mary Shore. Remember Chief Sergeant Shore at the Academy? I don't know what she does off duty—with that body she could do anything or anybody she wanted—but on duty, she's po-lite and po-lice-proof. Howsomever, she hasn't broken J-M's arm yet, so he hopes on.

"Want me to have Lois call your wife?" he nodded at his phone screen, changing the subject.

"Please do. 'I'll call later, but don't stay up'—Lois will know the don't-worries to say. Thanks."

Jeff grunted and went back to his call.

The phone on Wynn's desk blinked. He took the call: Harry Segura, Nightwatch Commander on the detective squad.

"Wynn," he started off, firing his words rapidly from habit, not with any expression of emergency. "I've been monitoring the TAC team you called out. They're asking if you want everybody held at the house?"

"No real reason, Harry. But I'd be interested in who wants to go—and why."

"Something smells out there, huh?"

"A botched reincarnation. The mother-donor's still in labor. And they'd called in a priest. I got an itch I can't scratch."

"Maybe he was just caging his bet. Some people do." Segura, of course, was firmly religious. "Priests have been visiting dying people for ages, *amigo*."

"Agreed. But it's not normal in reincarns. They don't expect to die."

"O.K. with you, then, if I take a hand? See if we can find a conspiracy to kill by neglect, huh?"

"I wish you would."

"O.K. There's a car on the freeway now—two of my best snoopers. We'll tail whoever leaves."

"And run a check on . . ."

"Everybody. *Naturalemente*,

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amigo." Segura cut the line from his end.

Wynn sat back and rubbed his eyes. That would get him a lot of high-powered help, that call.

The phone blinked again. This time it was Wynn's boss, Captain Orley Merrit, Daywatch Chief of Reincarnation Monitor and Protection—an Officer/Telepath himself.

"Stanford," he said without preamble, "come up to the TAC Room, will you? We're all set up to run your problem, now." The words echoed in Wynn's mind with Captain Merrit's characteristic telepathic pattern. The illusion was common enough. Wynn could see Merrit's heavy-lined face change expression, his lips move, and could audibly hear his voice, but there was no personality there, only the phone; his mind had set up the illusion of hearing thoughts as well as words. The effect was brief; Captain Merrit cut the circuit.

"Command performance, Jeff. Let's go!" Wynn buckled on his belt, picked up his helmet. He realized that watch commanders were busy men—and they expected that he didn't have time to waste—but that was twice they'd hung up on him. *Next phone call's my turn,* he promised himself.

"J-M's got his helmet off," Jeff reported, falling in step with Wynn. "Central will hit his beeper and tell him where we are. He'll have to put his hat on to carry the coffee."

"Must be still talking to—what's-her-name. He may have some hope after all." Wynn sprinted three steps for an open lift shaft and punched for the sixth floor.

The TAC Room was an auditorium-sized room built to accommodate a complete wall of computer projection-screen. There were seats for visitors and working officers; console desks and input panels for operators; three walls lined with computer consoles and peripherals; but the main focus and purpose of TAC was its wide display screens. Screens that could project data from the central computer—any unit on the sixth floor, or, through long-line timesharing, from any other police computer system on the continent. Here any data needed in a police operation or investigation could be displayed, from giant-size fingerprint blowups through blood serology and forensics to, as now, a street-and-survey map of Lancaster Megacenter and the surrounding desert and mountains.

Wynn located Captain Merrit the minute he came through the doors. The captain was dictating to Officer Mary Shore, who was working a steno-input panel. That girl was beginning to turn up quite frequently around Wynn's TRM&P team. J-M had more going for him than he knew, evidently.

Another Officer/Telepath—Wynn felt the pressure of his block and recognized him visually—was stand-

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ing behind Captain Merrit frowning over a blue blood-analysis card and running one hand through the disordered vertical tufts of his red hair. The hair and his height were landmarks that located the head of the Forensic Laboratory in any grouping.

"Sit down, Stanford," Merrit said. "Matthews, give Davidson here the blood cassette you took from the mother-donor, then find a chair yourself.

"Davey, I want that run through our own readers again," he said, when Jeff had handed over the plastic rectangle. "See if the computer analysis and bloodtyping comes out the same, just for a check. Then put Phillips to work on the cassette itself. Repeat the analysis manually, chemically, with his microscope and Mark II eyeballs. If our medical computer is throwing bum analyses, I want to know it yesterday.

"You had any dinner yet?" This last was to Wynn; the lab chief was halfway to the door, carrying the card and cassette like bubonic plague samples.

"No. I've got rations coming," Wynn answered.

"Help yourself." The captain gestured at a wicker hamper of sandwiches open on the desk. "They pulled me away from a roast beef dinner when your call went down. My wife carved up enough for a whole division. Take a couple. I'll be a second." He turned back to pick up a phone-set, punched a lighted button on his panel.

He wasn't on the call more than a second. Two bites into the sandwich and Wynn found the captain staring straight at him again.

"When you were syncronizing with him, before he died, did you find anything to indicate that this might be an elaborate suicide? Anything at all?"

"No. There was nothing like that." Wynn was a little surprised. The idea hadn't occurred to him. "It would be a pretty expensive way to go about it considering the bond he had to post and the financial outlay he's put into getting that hospital equipment into his house. His whole purpose in applying for reincarnation was to continue to expand his financial empire. A suicide motive seems unlikely."

"Perhaps. Well, I've got a librarian rerunning his file and financial check, looking for possibilities. It's a chance; she may turn something.

"But you don't believe it, huh? No doubt in your mind that this Hertigen-Ames is still carnate?" Merrit asked, bulleting the last words out.

"No doubt." Wynn finished swallowing a bite of sandwich. He wasn't on trial; Merrit wouldn't hold a discipline session in the TAC. "I didn't hear a thing. His personality definitely didn't cross over. The mother-donor just wasn't ready for the birth, Captain."

"Still isn't," He tilted his head

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toward the phone. "Lewisham's just finished a pre-birth probe, out at the house. Negative, on the carnate. The head's presenting, however, and birth should be normal . . . soon." He paused a bit, then put both hands on the arms of his chair suddenly—a motion of decision.

"O.K. So we have a free carnate personality," he said. "And we've got to find it and find it fast. Here's what I've laid on so far." He gestured to the controller seated in front of him. "Show us, Ralph. One operation at a time, unless I stop you."

A red circle sprang into being on the map and a bright red dot at its center.

"That's your forty-kilometer circle," Captain Merrit narrated. "Statistics says that this is the limit we can expect the Hertigen-Ames carnate to keep. This may be your first loose death, Stanford, but we've had others. Enough to know what to do about them, maybe.

"So. Forty-kilometer radius. Notice it cuts into Palmdale International Airport. That's the biggest headache as far as manpower is concerned. I've already gotten the help of airport security and the sky marshals. They will screen every pregnant woman and babe-in-arms going through there tonight. An Officer/Telepath has been there for . . . two minutes, now. If Hertigen-Ames is already born and somebody is trying to get him out of town, we should catch 'em. One O/T is a mighty little cork, for Palmdale, but the airport is going along with us. Any more officers and they might start asking for permits and right-of-privacy-waiver orders. Most people know what we do and about our . . . professional ethics, but a lot of them still think we are mind-reading snoops.

"So, sky marshals and one TRM&P team—the airport's plugged," Captain Merrit summarized. "Next, Ralph."

John-Michael came up to the group, carrying a paper tray with coffee and rolls, as the computer screen began to display a new pattern of symbols. J-M put the tray down and scrunched into a seat beside Jeff.

"Coffee, huh?" Merrit said, noticing him. "Extra one for me? Thanks." He wrapped a hand around one of the cups and thumbed the lid off. John-Michael glanced across his back at Mary Shore, the sadness in his eyes almost painful.

"The blue triangles are hospitals and sanatoriums in the area," Merrit went on, his eyes on the screen. "Yellow squares: doctor's offices—assuming a pregnancy-birth being carried to delivery in an office.

"The computer's running on that now. Matching registered pregnancies against the time of Hertigen-Ames' death—plus time to thirty minutes ago. Any birth occurring from now on is a priority

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alert with notification direct to us here in TAC. We'll get some of those along about two or three o'clock in the morning, like always. But that's cutting close to your deadline on the carnate. The best bet's what's in the tapes now."

"I'd say we'd run out of time long before that," Wynn said.

"So would I," Captain Merrit said dryly. "But, of course, you are the only one who can say that, Officer Stanford. The statutes are quite clear on that point. You are the Officer/Telepath responsible for this reincarnation and you have the final authority to declare it complete, or terminated. And regardless of the statutes, when I say *final authority* around here, I don't mean halfway . . . ah, here's your birth list."

The screen displayed a grouping of blue lights that flashed to attract attention, then held steady.

"*Hm-m-m.* Not so many. Still, a lot."

"Do they have the hospital breakdown yet?" Wynn asked.

"Sure. See where they sit on a blue triangle. Wait a bit, I get what you mean. Ralph, display the printout, will you?"

"Moment," Ralph said. A section of the map blacked out and printed type began to appear, four lines at a time.

Merrit picked up his phone, punched a number. "Operations." Down on the floor of the TAC Room, to his left, an officer turned toward the captain, the fingers of one hand steadying the microphone on his headset.

"Do we have any teams at those hospitals, Ops?" Captain Merrit asked. "Put them up, will you?"

The man stuck his thumb in the air and began typing. Hospital names and team numbers appeared on the screen.

"Why nobody at Fox Sector Municipal?" Captain Merrit asked his Ops man. "Oh. That's the team that came out to back you up," he explained to Wynn. "They were the closest.

"Ops." He was talking into the phone again. "Assignment: FLASH PRIORITY. To those teams: Scan the births indicated for possible reincarnated persona. Notify TAC of results immediately. Send along those names on the board and get it off ahead of any other traffic.

"Ralph, clear those teamed hospitals off the map. What's it leave? Seven? No eight. Not too many?

"Plot me a course! I want to see the shortest time out of here to all the rest of those birth points, one at a time, and return. Also fax us up that list on my repeater."

"A lot of leg work, for the time, Captain," Wynn said. He was going to have to go out to each of those births and scan the infant for Hertigen-Ames.

"Agreed. However, you've got about all the manpower I can pry loose. Tell you what . . . procedure

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calls for a twenty-four-hour telepathic watch on the new incarnation. Three teams. You've got one of them already: Lewisham. I'm going to pull the dayshift relief in early. It'll be a lot easier to juggle the work schedules of three teams or so, than to reorganize the whole division. Then, if you get something definite, I can cut back on some other job and shoot you help, but . . . I'll hold them here at Homeplate. If you need them, you won't want them lost in greater Lancaster."

"Very well. I'll run the leg work. I can do the scan faster at this point anyway. My sensitivity for the carnate is greater than anybody I could transfer it to."

"Agreed." Merrit turned his head to the screen where a twisted course line had connected the remaining blue lights. "Ralph, hold that as a map, print it and fax two copies to Transport. Have them warm a chopper and start clearances for the flight plan. Call it an emergency search pattern and have Air Control track and feed the pilot radar traffic continuously. Work the paper after he's in the air. O.K. by you, Sergeant?" This last was to John-Michael who, of course, would fly for Wynn.

"Night vision lights in the chopper and the clearance rooms," John-Michael said briefly. "Owl-eye on board. I'll have to hunt for lawns to land on."

"You hear him, Ralph?"

Ralph heard and waved an arm.

"O.K. I'll have Communications phoning ahead of you to clear your way and wake people up. I'll put Officer Shore on it. She's good and fast. Back her up with Watch Commander MacMillan for authority."

The three patrolmen grinned, despite the tension of the situation. W/C MacMillan was a fictitious police official who could be denounced publicly and demoted or disciplined if toes were stepped on. Currently and actually, he was a young communications sergeant with a cold, no-nonsense voice pattern, a flair for dramatics, and an ability to quote nonexistent regulations.

"Anything else you can think of, Stanford?" Captain Merrit's voice was back to business again.

"No." Wynn felt he hadn't contributed much—except the original problem. But the TAC Room was Captain Merrit's home ground and he knew how to make it work. That map and course he'd just generated would cut the leg work down considerably. "Except, perhaps . . ." Wynn crumpled his coffee cup as he said, "I still want to know what went wrong with the planning on the original mother-donor. That shouldn't have happened."

"Later. Definitely later. You called Detective Section in on it. Let them work. They'll turn all you need to know."

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"Then finding Hertigen-Ames is the next thing." Wynn stood up.

"Couldn't agree more," Captain Merrit growled. "You haven't got any other job in the world. That's why you're wearing that white hat. Now beat it, and let me finish my dinner!"

Wynn hesitated a moment. He half wanted to say something else, but the thought died unformed, and he headed for the aisle, Jeff ahead of him and John-Michael bringing up the rear. J-M had the printout list and a faxed copy of the course map.

Officer Mary Shore caught up with them just outside the door. Wynn was conscious of her quick footsteps behind them and John-Michael said: "Wynn . . . I—"

"I'll tell him, John-Michael. I know you didn't have time to get a word in edgewise. When Captain Merrit is playing warlord with his TAC Room, nobody does. Officer Stanford, we've . . . I've got the husband of your mother-donor here. He came in to ask something—I don't know what—when your 805 went down. The Public Interview Section picked up on him and put him on ice. Officer, you've got to see him. Maybe this is just me . . . as a woman, not as police . . . but that kid's been sitting around for hours now. You can't tell what he's thinking . . . I mean, you can, of course . . ." She took a deep breath, then said what she'd been trying to sa all along. "Nobody *could* tell him anything, Officer Stanford. You're the only one who has the authority—the only one who really knows. Look, *somebody's* got to tell that boy that he doesn't have Hertigen-Ames for a kid!"

"Oh, for God's sake, yes!" Wynn had completely forgotten, if he had ever thought of it, that there was a father somewhere. "The child is his now, isn't it. Not legally, yet. That'll be a mess to straighten out. But physically it is his." And Mary Shore had thought of it. There were, it seemed, depths to the cool policewoman that shed a new light on John-Michael's attraction for her. "Hard as nails, huh?" he said, glancing at Jeff, then: "How much time do we have in that flight plan, J-M?" He ignored Mary's quizzical expression, but noted that she hadn't missed his aside to Jeff, even in her anxiety. Sharp.

"Five minutes," John-Michael said, looking at the printout dubiously. "Maybe less."

Wynn spread his hands. "I can't . . . Mary Shore."

"I brought him up to the sixth," Mary said, her eyebrows lifting at his use of her first name. O/T teams were on first-name basis within their close-linked trios, rarely with anyone else.

"I signed him up, Wynn," John-Michael put in. "Room Five, ahead to your right. He's on our—my—responsibility, not Mary's."

"Go!" Wynn said. "Five minutes,

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then pull me out, bodily." He made his decision.

Jeff opened the door, checked the interview room—he never forgot, even in Homeplate—and announced, "Officer/Telepath Stanford." Then he let Wynn in.

The man in the room was sitting slackly at one end of the table. Someone had provided him with a paper cup of coffee, but he was just holding it, the cup still full, cold.

God, the guy was a kid—a baby. Nineteen? Twenty? Wynn linked into the surface thought of the thin, slumped figure. He broke the "no listening" regs without a qualm; this boy needed help. The bare table-and-chair furnishings of the interrogation room had worked their depression syndrome on his mind, dulling it, but the ID pattern was there, *David Saunders,* and twinned to it, an over-lovely, *Mary-Lewis.* Wynn's own mind supplied a prone grotesque of the mother-donor, face unseen, but certainly unmatched to this goddess. Below the persona-pattern was a spiral whirl of worry-thoughts, so classically formed that Wynn almost laughed.

Bills to pay, late for dog feeding, car gas low, reasons for arrest, who was a lawyer, time, would miss work, job status, loss of job, food supply in icebox—all straight out of the textbooks.

Then rising to shout at Wynn's mind, as Saunders' head came up and his eyes saw, really saw, the white Officer/Telepath uniform: *Mary-Lewis! How is she? Is she alive? IS SHE DEAD?*

"Your wife is fine and well," Wynn bulleted the thoughts into his brain, putting them also into words, so that he would get them clear. *"Well. In a little while you can see her."* Then he concentrated in flooding a calming, soothing pattern at the boy, while he went on verbally. "Mr. Saunders, I'm sorry to have kept you waiting so long. We've had an emergency around here and were a little busy. In a moment, I'll have a police car free to drive you out to see your wife."

"How is she?" Saunders pleaded, then he remembered. "Oh, you told me, didn't you? Just now? I didn't make it up?"

"I told you," Wynn confirmed.

"I asked and asked. Nobody would tell me anything. Just, 'Come here. Go there. Wait here!' I know I signed a contract, but I had to know. I had to. She's all I have. I've been alone for months . . . without hearing. Nobody would say anything. Nothing. They could have told me something."

"Mr. Saunders, no one could tell you," Wynn said sharply. "According to statute, only officers with this uniform,"—he pointed to his chest—"can discuss reincarnation data with anyone. Now, listen to me. I haven't much time. A reincarnation is technically a matter of very close timing. I won't go into it, but your

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wife's pregnancy, while normal in every way, was not timed precisely right. We were forced to use the services of another donor." He hoped that was a correct summary of what had happened to Hertigen-Ames. He hoped. "That is why I can let you see your wife, something you wouldn't be able to do ordinarily. You understand?"

"I'm going to see her?"

"Yes. Soon. She is no longer a donor. Later on, our legal staff will contact you and advise you of your further rights. For now, you just relax and wait here. It won't be long."

"I'm going to see her," Saunders repeated, then began to cry, soundlessly, the tears flowing as he blinked his eyes. He crushed the coffee cup slowly, the cold coffee flowing over the table.

Wynn considered a link to tell his mind what he obviously wasn't hearing, but there wasn't time. Maybe the kid was right anyway. He'd gotten the essential part—Wynn remembered that haloed image of beauty. He was going to see her.

He motioned J-M outside.

"Mary, I want to draft you off that comm-job, O.K.?" he said. "Right now that boy needs a woman."

"Hey, Wynn!" John-Michael let the exclamation escape.

"Cool it, you big ape," Mary snapped at him. "He means mothering. Get your mind out of my bedroom." She turned back to Wynn and nodded, but her eyes were shining, her delight at J-M's old-fashioned masculine jealousy glowing in her face.

Wynn put on his helmet, he didn't have to hear her thoughts. He pushed his call signal and said: "Patch me through to TAC."

"You're on," Merrit's voice answered in his ears with the telepathic illusion.

"Sir, I would like to have Officer Shore take the mother-donor's husband out to the Hertigen-Ames house and clear him through to see his wife. He is near collapse and a woman's touch is indicated. Can you replace her on the communications job?"

"Hell, yes! Glad you thought of it. You've got to keep halfway human to stay on this job. Let it show more often, Stanford. Do it! And tell him he's got a son—healthy. Lewisham's final probe says there's no Hertigen-Ames. Firm negative; the kid's all his." The line cut off.

Damn, people were still hanging up on him.

"Find a phone and lay it on, Mary," he said simply. "The baby is a boy. Tell him, and stay with them for a while. He loves his wife."

"Oh, yes," Mary said, and turned away.

Wynn did too. Jeff was holding the lift shaft door and he took off running. Everybody was happy to

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date, but Hertigen-Ames. He was still lost. Wynn went hunting.

Five stops later he was still hunting. His time on the ground had been fast at each place. Watch Commander MacMillan's comm-calls were successfully working ahead of him. The various nursing staffs were startled into cooperation, but understandably ruffled at having the even tenor of their night shift broken by a sleepy administrator or chief surgeon—one doctor showed up in pajamas and raincoat—conducting Wynn straight through to the nursery. The fact that all he had done was spend a brief minute, just looking at one child, then left, stiffened tempers and started ripples of anger or disgust widening behind him. Those ripples were going to hamper police cooperation at these addresses in the future.

He'd found one premature in intensive care; four healthy infants, two of which were girls; and a full-term fetus, born dead and not yet claimed by a mortuary. But no trace of Hertigen-Ames.

Wynn stretched himself out wearily in the copter's seat and eased off his helmet. He'd had to probe the dead fetus. Hertigen-Ames' unassisted crossover might have been the shock that killed it—and the experience had drained him. His fatigue was reinforcing his increasing sense of tension, of time running out. The awareness of failure was building a depression that he had to repress constantly.

The night was full of failures. Hertigen-Ames had failed to cross over, Captain Merrit's net, spreading ever-wider through the forty-kilometer circle, had failed to find anything. Wynn himself had found no trace of the carnate. He'd even failed to take the time to call his home, and it was past eleven.

His tired mind began to form a calling—building Edith's warm woman-pattern on the trick thought-link that they shared. Abruptly he blanked the calling. He'd always rigidly kept from contacting Edith telepathically while he was on duty. This time his tiredness had betrayed him. He'd worked night duty before; Edith would understand without a call.

If there were only some way to call Hertigen-Ames.

A bubble from an earlier thought image drifted out of his memory, keyed by the flowing river of lights on the freeway. A waterless river in the desert, but he was beginning to sympathize wholeheartedly with the problems Isis had faced in her search. Poor Isis.

"Wynn, I been thinking," John-Michael broke into the silence. "What Captain Merrit said, back at Homeplate . . . do you really have the power—authority—to stop Hertigen-Ames' reincarnation? Even though it's registered and paid for and everything?"

"It's not something we talk

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about," Wynn said. "But yes, I do. When I'm listening to him during the transfer I'm the only one who can tell if anything has gone wrong—criminal intent, permanent mental damage; a number of things. Rarely happens. I've never done it."

"That would mean just letting him die, wouldn't it?"

"Yes." There was no more to say. The one word explained Wynn's power and his reluctance, any Officer/Telepath's reluctance, to use the power.

"But I'm not ready to give up on this one, J-M," he said, tiredly. "We've got hours yet. Good hours. Keep flying. What's our next stop, Jeff?"

"Hold on!" John-Michael was listening. "Put your helmet on, Wynn. The detective squad's calling you."

Wynn pulled his helmet down, heard John-Michael say: "Go ahead, Mobile One-Five. We're tailing your doctor. About one minute away from the house he got a call on his car phone. It was kind of cryptic; patient-not-doing-well-and-could-doctor-come-right-out stuff. We taped it. Anyway, he agreed and now he's gone to ground in a trailer park at G Street and Peartree Terrace. Map grid: K-25-F6. There is another car there carrying a doctor's tag on the license plate—mud on the numbers, no make. We've got a street patrol covering the back way, but nobody's come out. I put a snooper-mike on the place and can hear two people, but I can't make out words. Sounded like a baby crying when we first focused in, but I haven't heard it since. We're all ready to go in and charge them with felony child delivery. There is no pregnancy registration or birth record for this address, or for Dr. Warner. Captain Merrit said to call you before we moved."

"Very well. Try to keep talking so we get a picture. Stay on this frequency. TAC will pick it up."

"Uh-huh. Here we go. Hit the door, Pete!" There were crashing sounds, then, "Freeze! Police!" Then more urgently, "Keep working, Doc! If that baby dies you may be up for murder."

A second voice began describing. "Two doctors in the trailer . . . working on the baby . . . got tubes in his mouth. One is squeezing a balloon thing. The baby doesn't look good . . . guess it stopped breathing.

"Mother is all right. She's out . . . unconscious, but breathing looks good. Stanford, I'm no good at this, but it looks like the baby was just born. Lot of blood."

"Ambulance rolling to you!" Merrit's voice cut into the helmet circuit. He was covering them from TAC.

"Good. There's a hell of a lot of blood . . ."

The detective's voice was cut off

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by a baby's cry. A thin coughing scream, then a stronger yell, followed by a third.

"That sounds better," one of the detectives said.

"I've got to get where I can listen to that baby," Wynn said. He had been spinning knobs on the copter's navigation strip-chart display. The on-board computer's storage came up with the display chip and put a light point behind the target intersection. The digital windows flashed a string of figures.

"Course 030 degrees, magnetic, J-M." Wynn pointed to the readout. "Fifteen minutes," he said to the listening detectives.

"Find out where I can set this down," John-Michael said, banking the copter into its turn.

"Air Alpha Tango. This is Lancaster Patrol, Twenty-George. There's a market a block away from us. They keep it all lit up. Our backup car is close. I'll divert him in to pick you up. Watch for his roof light." The police patrol was talking on the helmet frequency.

"No good." Wynn changed the plan. "You'll have to bring the baby out to meet us. We'll land in the market in . . . fourteen minutes. Pack up the baby and start your run, now!"

"Uh-huh. Coming out." The detectives didn't waste any time arguing with Wynn. They concentrated on the trouble they were going to have getting the baby away from the doctor and into their car.

"There isn't much chance that Hertigen-Ames will be in this baby," Wynn explained to J-M. "It was just born and Hertigen-Ames has been loose for over four hours now. But I have to check. And I don't want to waste any time.

"Stanford to TAC," he called to the listening captain. "Can you divert the ambulance to that market?"

"Air Alpha Tango, this is Twenty-George. I called that in on our frequency. They will meet you."

"Somebody's thinking in that car," John-Michael muttered. "Thanks, Twenty-George. Alpha Tango, listening out.

"That must be our market down there. See any red lights?"

"Yep. Just coming in," Jeff said. "It's the ambulance. Where's the squad car?"

"About half-a-tic away," the voice on comm-helmets spoke up. The detectives were using the helmet circuit as an open two-way communications system now. "We have you in sight."

"Not for long," John-Michael said. The bottom fell out as he dropped the copter.

"Same routine as before, J-M," Wynn said when the copter was rocking on the ground, its rotors ticking down to idle. "Keep your blades turning. If I don't hear what I'm looking for, I'll be right back."

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He opened the door and climbed down, Jeff following him.

"Where do you want us, Stanford?" The voice in his helmet asked. The squad car was rolling into a wide turn across the open parking lot, red lights flashing and its tires screaming on the low-speed traction surface of the lot. "At the copter or the ambulance?" the detective finished his question, adding unnecessarily, "We're here."

"Ambulance!" Wynn said and headed toward the parked vehicle at a trot, arriving at the same time as the squad.

One of the detectives, Turnbull—Wynn quick-scanned his name—got out of the front seat holding a cloth-wrapped bundle.

"Who's your prisoner?" Jeff asked, referring to the handcuffed man in the back seat with the uniformed patrolman.

"The other doctor," Turnbull said. "Think I'd bring anything this small out without a doctor. Not me. Backup car showed up so we broke up the pair. My partner's giving Warner his rights and doing the workup. We'll take this one in. Commander Segura's got the charge sheets all set and waiting at Homeplate."

Wynn nodded, but absently. He'd heard part of what the detective had said, but most of his attention was on the tiny bundle—the baby. He was *listening,* tuning to the baby's mind. The mind was still alive, asleep, droning with even rhythms of body sensations pouring into the brain. Warner's treatment had kept the brain's oxygen level high enough when the breathing stopped. There were no breaks or emergency survival reactions on the surface patterns. Wynn spread his sensitivity net and probed below the vegetative systems. He found nothing—Hertigen-Ames was still missing; still lost in his carnate drifting, or prisoned in madness inside some other infant mind. The hot, singing spark that Wynn could sense was growing into this baby's own personality center—but there was nothing else.

He pulled his link out, without touching that center.

His ears, when he relaxed his *listening* enough to let sounds affect him, picked up the baby's crying. Loud, angry, the baby was audibly alive, breathing, and had every intention of staying that way.

Wynn turned his head, met Jeff looking at him intently and said, "No," in a low voice. This search, like all the others tonight, was just one more piece of negative police work. He couldn't have skipped it, even without the inducement of Dr. Warner's involvement. He had to check it out; just leg work. "Not what I'm looking for, sorry," he said to the detective. "Give him to the medics. You can take the two of them in now, Turnbull. And thanks for running him out."

"No problem. We got here, that's what counts." Turnbull handed the

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baby up to the medic in the ambulance, then took hold of the doctor's arm, when the patrolman brought him over, and shoved him up into the lighted interior. He climbed in behind and pulled the door shut.

The ambulance got moving on the sound of the door slam and rolled smoothly out of sight.

"You guys always run around like this?" the squad driver asked Jeff. He'd gotten out of his car, standing by the fender while his partner handled the prisoner.

"Last week I was complaining about the paper work," Jeff said. "Next week there won't be anything to do but fill out chits to get my quarters back from the coffee machine. Want a recruiting application?"

"Not a chance," the driver's partner spoke up. "He's on night duty because of his driving. He hits things when he can see them."

"Safety of the citizens, huh?" Jeff said. The guy had rolled in with a full-race, corner-clipping style. "Bet he's death on dogs and cats."

"Chickens, this far out of the Megacenter," the driver said. "Haven't hit a dog in weeks."

"Let's get back to the copter, now," Wynn said to Jeff. "They can clean up"—meaning the two detectives—"back at the trailer without us."

"Mind if we stick around," the driver asked. "I want to watch you lift it off."

"Yipe! Now he wants to be a pilot." His partner put a hand over his eyes in mock horror. "A menace up to forty kilometers."

Wynn gripped the patrolman's shoulder, shook hands with the driver. "Thanks for the backup," he said, sincerely.

"Breaks up the night—what we're here for." The driver acknowledged the thanks as unnecessary, but welcome.

Wynn followed Jeff across to the copter—John-Michael had the door open, waiting—and climbed aboard. The adrenaline surge of moving cars, the rotating red lights and the mind-awakening probe-scan of the baby had refreshed him, cleared the fatigue from his mind, for a time anyway.

"Hold on, J-M," he said. "I want to check in to Homeplate. See if they have anything new for us." He sat back, spoke into his helmet, for Captain Merrit's ears. "Wynn to Homeplate. Mission update, please."

"Homeplate here. Update list, reference: Alpha Charlie One-Five. Delete subject. That is N.G. Subject has died. The doctor filed a death certificate into the Med-computer. Also, delete reference: Peter Able Two-Two. This is a computer error. Subject's age month is wrong. Subject is five weeks old."

Wynn sat quietly waiting for more information. Those were the last two on his list. Merrit would have to give him some new candi-

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dates. The buoyancy he had felt moments ago drained away as the silence continued. Finally he said: "Go ahead, Homeplate."

"That's all. The computer run has been rechecked."

"It can't be." Wynn sat forward, his body demanding the information physically. "I've got a carnate persona out here somewhere. He's got to have made a transfer by now. It's after midnight. What about the airport?"

"Negative." Merrit's voice was flat, even filtered through the earphones. "All the infants screened out there were too old. We checked them, but the ages were wrong. And no pregnancies went out of Palmdale tonight. It *is* now after midnight, and the concourse is emptying out. Nothing likely there, Wynn."

"But . . . what am I going to do?" Wynn knew the size of the organization that was backing him from Homeplate. The coverage and manpower that had been and still was searching and sifting the forty-kilometer circle—even he had been a part of that search, using a list and the guidance of that smooth organization. But it wasn't enough. He felt like running out into the night and knocking on doors. But that was just a symptom of futility. He was helpless for the moment: by himself, he could do nothing.

Once the infant housing Hertigen-Ames' carnate life-force was found the telepathic job would be his, and his alone. Homeplate couldn't help him with that. But unless they found that one newly-born baby, he couldn't do a thing.

"Ah . . . Air Alpha Tango. Break. Break. Break." Someone was requesting permission to cut into the transmission. "Homeplate communications watch commander: I have a confidential message for Officer Stanford."

"Air Alpha Tango," Wynn said quickly. "My transmissions are on Code 805. This circuit is not secure. Can you GA?"

"I think so. The message is from a special agent operating with a small welfare medical team. He has a receiver and listens at prescribed times for instructions and information. He can transmit five-tone codes. You understand we aren't getting much information from him, and I may be reading a lot into his message."

"What is the message, please?" Wynn broke in. His eye was on the copter's clock and there was no time for this sort of stuff.

"I think he has found the infant you're looking for."

"What? Where? How do you know?"

"I want that message up at TAC," Merrit broke in.

"I don't know for sure," the comm-man said. "His code was, 'IN REGARD TO SEARCH IN PROGRESS. SUBJECT IN CUSTODY. SEND O/T. ENTER BACK—MAINTAIN COVER.'

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Well, he *is* doing medical work. He hasn't got any right to arrest anyone and he shouldn't be searching for anything. Or so I understand. And he wouldn't need an O/T unless he wanted you, Air Alpha Tango."

"I have his duty assignment, Wynn," Merrit cut in. "A useful medical center just outside the Arcocenter. We want to keep him in there, so don't call him, Officer, or single him out if you can help it."

"Coordinates? Street address?" Wynn snapped. "All I want is a link with that baby if it's Hertigen-Ames."

"Foxtrot Sugar Eight; George Two-Three. On 17th and 114th Street. About a mile and a quarter from you. A rough part of town, Wynn. You want to come in and get somebody that knows the neighborhood? I'll have them on the copter pad, waiting."

"Negative. The local cruiser is still standing by. They should know. Address?"

"It's 1145 17th Street. The back way would be an alley, looks like on my map."

John-Michael leaned out of the copter door and beckoned to the squad car, bringing a patrolman on the run.

"You know 17th and 114th Street?" John-Michael yelled over the rotor noise.

"'Bout a kilometer from here." The patrolman nodded. "Up under the freeway. Tough country."

"Can I get the copter in?"

"No way!"

"Negative on the copter!" This last was a sharp command over the helmet comm-circuit, coming at the same time as the patrolman's denial.

"We'll go in the car, J-M," Wynn ordered. "Cut your fans and secure.

"Can you take us in there?" He called down to the patrolman, as the rotor idled to a stop.

"Sure. Five of us will be safe enough."

"Jeff. J-M. Bug out! Get me there!" Wynn unlatched his seat belt. "Homeplate, track us. I may need a full backup to take the infant out of here—if it is Hertigen-Ames."

"Monitoring. O/T team on standby. Don't forget to use the alley approach and preserve the agent's cover."

Wynn didn't bother to reply. He'd followed Jeff out of the copter and slid the door into lock position. John-Michael finished his cutoff checklist, snapped in the antitheft combination on the main power buss and followed them, rolling out the door on his side and running to take up his position behind Wynn.

The driver just whistled once—his only comment—when Wynn gave him the address, and rolled the cruiser as soon as John-Michael had wedged himself into the back seat. Nobody said anything else

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about their destination. John-Michael was working cross-talk with the detectives and the second local patrol car at the trailer, arranging a guard for the copter, and the TAC circuits were busy. In any case, there wasn't much to say. This was a straw. The undercover agent thought he had a carnate presence in a new-born baby, but was being vague about it for reasons of his own. If this was Hertigen-Ames, Wynn's long night was almost over. If it wasn't—there were no more leads. It had to be! A straw—to be grasped. The only one he could see with his tired mind.

The back way at 1145 17th Street *was* an alley and a passage down a hall in a decaying four-story building. The two patrolmen were unhappy about leaving their car in the alley, but they had no intention of staying with it. They came in; four armed men were a tenuous enough illusion of security in that block, in that building. The streets were empty, the building lifeless, but the menace was corporeal and real. John-Michael and Jeff were walking on Wynn's feet, their holsters uncapped. Wynn was carrying his probe screen close, barely open enough to cover the hall. He would hear any thoughts of attack, any emotions strong enough to represent a danger, and trigger whatever he heard directly into the minds of Jeff and J-M. This much was nearly automatic, a product of their training, his one-third of their teamwork when things got sticky. Beyond that, Wynn didn't want to probe. He didn't want his mind occupied or affected by contact with the people that lived in this building. The fact that they existed outside the social groupings of Lancaster Arcology implied mental and psychic unbalances as well as social problems. Wynn's aversion was not snobbish prejudice, but was a matter of professional technique—conserving his sensitivity. Popular drama tapes liked to use mind-reading police to solve their sticky plot evolutions with psionic tricks, but most policemen had enough contact with pathological people in their everyday business; they had no desire to go slime-crawling telepathically. Certainly not when the telepathic talent was specifically trained for reincarnation monitoring as Wynn's was. If—when—he made contact with Hertigen-Ames, he didn't want the mental noise of Lancaster's misfits feathering the edge of his link or distorting his working probe.

A single bulb near the entrance and a yellow glow from a glass-paned door at the other end of the hall relieved the dark hall. The yellow square in the door was their goal.

John-Michael went through the door, slamming it open, using the noise and the sudden appearance of Wynn and Jeff following him in their defensive spread to freeze

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whoever was in the room. The two patrolmen stayed outside in the hall as backup, then followed in when no action developed.

Wynn ignored his partners, moving with them, but concentrating most of his attention on his listening. Two men were standing, looking at a small bundle in a makeshift crib—a wire shopping basket of some kind.

Wynn touched one man's mind—the doctor . . . Samuels. He expanded his link to reach the infant—and felt . . . !

The hard, clear link of another telepath. *ID: Bernard, Walter J. Code name, 'Bernie.' Don't break my cover, Stanford,* and the folding security of a backing personality, matching Wynn's pattern and following along his probe. Support . . . Standby . . . no interference and no communication beyond the ID. Just a strong, friendly touching: Get on with your work.

No wonder there had been vagueness about the special agent's report. The man was an Officer/Telepath. If the infant had a carnate personality present he would *know.* Why hadn't he reported it?

No code group for it. Other reasons. Later. Explain later. Officer Bernard's thoughts flicked out, narrowed down to vocal patterns.

Yes, later. Wynn unfolded the Hertigen-Ames sensitivity net and listened for the infant's mind. He felt a rising sense of triumph, a preknowledge of what he would find.

And it was there! The pattern matched, found nodes of agreement, skewed to fit; Wynn was listening to Hertigen-Ames.

He had time for one brief call to Jeff—vocally. "He's here. Backup!" Then he was jerked into the whirling, emotion-roiled, sensory-intake system of Hertigen-Ames' mind pattern. Pulled in so strongly that he actually rocked forward on his feet, translating the mental tug into a physical force. The triggers he had planted in the dying carnate pattern had recognized his touch; seized hold with a singleness of drive that was near the insane level; clung to the only familiar sensory impression that could be recognized and handled by the eighty-six-year-old personality swirling in the infant's mind.

And this was not the tepid persona of a dying body. Hertigen-Ames possessed a steel-hard, organized, executive mind of top caliber; now, driven by the high-burning flame of a new-born incarnation, it was rocking Wynn with its demands for information, control and ego dominance.

Wynn handled this with technique. He didn't fight the demands; Hertigen-Ames had too many things fighting him now. Instead, Wynn expanded his trigger pattern, let it flow into and around the jabbing, probing conscious-mind sec-

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tion. He met the voice-patterned imperatives with symbols of friendliness; soothed the surging memory cell bursts; dampened and filtered the emotion content: all the while strengthening and amplifying his presence to assure the conscious centers that they were no longer alone. Friends had arrived, would help and would stay. Bit by bit he increased the filters, began to slide up blocking areas to take this system of Hertigen-Ames' mind-pattern off and away from the cerebrum-sensory system.

This area was where the work must be done. Here was the source of, and remedy for, the carnate's reorientation syndrome. Wynn could not operate on that area telepathically—no telepath could. That center was the body's operating system. It ran the body; it ran the mind, conscious or unconscious, mad or sane, and it was completely impenetrable. Wynn could, however, listen to it, sort its signals, filter them from operative cortical functions of the Hertigen-Ames carnate. That is, he could do it for a short time, until Hertigen-Ames learned to do it for himself—for about a year in the new infant's life. After that, nobody could touch or listen to that link. It was one of the anomalies that made reincarnation possible with help, and created Wynn Stanford's profession.

Wynn was setting in his filters now, accustoming the infant's cerebrum system to their presence and linking them into the carnate's subconscious storage system. He found a difficulty here: a resistance he had never experienced. The infant body had extremely strong neural signals, autonomically pulsing the heart, breathing the lungs—the baby must be crying like an opera singer—and bulleting nerve trunk signals in against Wynn's filters. And that wasn't the only area; sensory signals flowed in from all over the small infant body; over and within it, feeding the brain with its contact with the world. Skin sensories, warm, cold, muscle tension/relax/feel, air pressure, light, color, sound; stimulants to hunger, to movement, to fear—an adrenaline surge that Wynn knew as a burst of white-blue color and pressure—neuron messages in the millions per second or more; all swept into the brain along the afferent chains and were hurried out on efferent dendrites.

And that was Hertigen-Ames' massive danger.

The infant's brain was physically small and was receiving these sensory impressions essentially for the first time. The first months of its life—the first days—the brain would absorb, identify and correlate the signals; storing them in memory cells and learning to respond to others with proper feedback signals to its body. The brain would grow in physical size to accommodate this, and other processes, and some things—sight, hearing, balance—

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would wait for physical growth of the body before the mind could attach meaning to the signals or use them. That is, except for the presence of Hertigen-Ames' carnate personality.

His mind pattern *knew* what the signal meant. By the time *he* was five years old his mind had good control of his old body. He had been implanted in that body for some eighty-odd years, growing to the cerebral operation of a mature body. His memory was that he *could* see; that he *could* move his hands and legs; *could* talk and hear. His response, feedback, efferent-thought pattern, was geared to controlling all of the bodily functions of an adult body. The infant brain was overwhelmed, and had no coordinated way to handle the response in any case. Hertigen-Ames was controlling the infant brain, but he was doing all the wrong things and getting back a completely unknown—to him—set of sensory signals. Things had gone from bad to worse, until Hertigen-Ames was very near insanity when Wynn had contacted him.

He was very near actual death too. The automatic brain/body processes of a newborn infant are extremely strong in the survival department. The textbook time limit, against which Wynn had been working all night, had a very real clinical basis. The new-born mind, struggling against the conflicting sensory orders of Hertigen-Ames' carnate, would have begun to ignore the false-to-real commands. Locked in his own memory/correlation of the bodily stimuli, Hertigen-Ames would have been isolated inside the infant mind—clinically schizoid; insane. At the end of the thirty-six hours the intensely viable infant-mind would have healed itself, as far as Hertigen-Ames was concerned, and all trace of his persona would be gone. An actual, unreincarnatable, and—to telepaths on the police teams—a particularly horrible death.

Light came in the infant eyes. Hertigen-Ames fought to see; screamed out at his blindness with emotion waves of fear, memory rhythms of sight and panic muscle commands to clear his eyes—to see. But the baby's eyes were too small to focus the light; the lens still unshaped; the rods and cones, receptive, but unorganized. Light, shadow, came through and were filed—Wynn recognized the patterns—but Hertigen-Ames' attempts at control were useless, overwhelming the untrained synapses.

Wynn moved his operational skill to that area, dampened the frantic output/feedback signals and flooded in the explaining symbols. He let Hertigen-Ames see the things his mental eyes wanted to see, sending them into him as sense-deprivation visuals. He explained the hallucinations, flooding warmth and rationalizations along

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the thought pattern, tricking Hertigen-Ames into following the dancing patterns and swirling colors and drawing the tortured memory chains away from their damaging conflict. At the same time he folded in the neuron charges from the infant nerve paths, guiding a section of the Hertigen-Ames personality, helping it to set up new, parallel memory chains; aiding in recognition and correlation of these disorganized signals until the process was partially locked in. Slowly a small section of Hertigen-Ames began to accept the new signals and handle them. It was a beginning.

Wynn changed the pattern of his filtering, working through the moving images, the sense-deprived hallucinations he had presented to the mature mind. He began to ease in rhythms to induce sleep in the conscious centers. Without sleep, and soon, Hertigen-Ames' mind would begin to fight back against Wynn's guiding and steering. With sleep, the automatic brain centers could be guided and instructed easily. More importantly, it would give Wynn a chance to pull out and rest. He could not keep up this contact indefinitely—continuously.

Hertigen-Ames changed from accepting visual hallucinations to translating them into dream-state awareness and finally slipped into sleep-patterns. Wynn began to pull his mind free, leaving the filter block still damping the high-powered cerebrum/cerebellum memory center. This block he could maintain with little effort and the Hertigen-Ames mind could recognize and sort incoming sensory signals through it. For a bit, now, the adult mind could work on the infant nerve impulses, set up its own correlations and, damped by Wynn's filter, begin to learn feedback levels suitable for the small body. Wynn pulled his perceptions back to the bounds of his own body.

Suddenly—Wynn had no warning thought, emotion, or perception of danger—he was gripped by that same sucking, pulling force he'd felt before. His concentration on the myriad details of Hertigen-Ames' mind pattern had slackened as the mind drifted into sleep; he had begun the process of withdrawing his probes; his mental pressure against the twinned carnate-linked mind had relaxed. And *this* had swelled up around him, pulling, tearing at his ego. Dragging at the telepathic links he had spread so finely around and through the double-mind and calling, swirling away personality awareness so swiftly that his blocks had no effect against it. In fact, his blocking techniques were all set up to protect the reincarnated persona from the Wynn Stanford personality matrix. They were set the wrong way for this attack, which was driving at *him*, not Hertigen-Ames.

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Now, for the first time, Wynn realized how deep he had let himself probe this carnate—too deeply. And he was being pulled even deeper by this drawing psychic force.

Mentally he turned and twisted; whirled in shapes and swirling color images; heard roaring, howling, sound sensories; felt pain, heat and cold, memory chains: all loosened and tumbling in nauseous, vertiginous swirls, down and away.

He became conscious of his body. Usually, when he was listening, he ignored it, letting his trained reflexes keep him standing upright, balanced, while his attention was . . . elsewhere. He trusted Jeff and J-M for his physical protection. But now—his body was clamoring for attention. His breathing was rough, fast, then shallow. His left arm felt paralyzed; his whole side, stiff. He tried moving his toes to restore the circulation—spending precious seconds from his internal defense on a minor physical trick. His right toes sent back satisfactory feedback, but his left ones didn't work. Something was blocking off, draining, his nerve control on half of his body, or half of his brain.

All of this long night, Wynn had been concerned, mentally and emotionally, with helping Hertigen-Ames. Now, within a space of seconds—half-a-hundred hurried heartbeats—he realized that he was in serious danger himself. A danger for which Jeff and J-M had no protective maneuver.

His mental perceptions slid out like a wrong-end-to telescope, swirling to infinity-focus curves. He fought and strained to thicken his blocks, filter out this dragging drain on his energies. If the nerve-block paralysis reached his lungs his brain would lose vital oxygen; if it blocked his heart he would be dead. And his belief in reincarnation was based on advanced preparation, proper mother-donor selection, and sophistication of modern technique. He'd seen that fail once tonight. And there was no advance preparation set up for him . . . he would be dead.

The memory chain of the praying priest swam through his torment. He hoped the prayers had been said for Wynn Stanford as well as for Hertigen-Ames.

Hertigen-Ames. With the symbol pattern, Wynn found his own triggers planted in the carnate. He grabbed at them like solid tree trunks on a slippery road; anchors to hold him and pull him back to a familiar reference point. He'd spread ties to the Hertigen-Ames mind and now he was using them to help himself, pulling in to the twinning he'd set up with Hertigen-Ames, seeking the friendly warmth and reality of that slow-sleeping mind . . .

And winning.

The ego-pull gave way, rebounding from its stretched tension,

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whipping like a relaxed shock-cord.

Wynn thickened his blocks, tightened them to the point where he lost consciousness. But he felt his autonomic system slide back to its normal rhythms in a comfortable, no-panic release, as he slid to his knees and fell sideways in his faint. The shock and pain of his left side hitting the floor was real, solid, and welcome. The paralysis block was gone.

He slipped his probing mind out of Hertigen-Ames and deep into healthy, welcome, blackness. Unconsciousness syndrome was a defense and therapy his mind and body heartily approved of at this point.

The ego-drain was conquered, blocked out; his mind and body were his again—a good, healthy blackout . . .

A screaming siren warbled in his ears; the sudden audible sound making his body jerk, muscles tightening in defensive reaction. Sometime during his work inside Hertigen-Ames—or probably after his faint—they had transferred to an ambulance. Wynn shoved himself up on one arm, found the baby in a plastic crib at the front of the police ambulance, then looked around at the faces watching him. The white helmet and intent face of an Officer/Telepath; his partner, also helmeted; the doctor from the clinic, his face bland over anger; the undercover O/T, Bernie, crumpled in a corner near the baby. Jeff had brought everybody.

Jeff was bending over him, a plastic ration bulb in his hand—high sugar, high protein, liquid. Wynn sat up to drink it. He needed energy. Just sitting up showed him how weak he'd become. The job had been rough. The baby's muscle and nerve signals had been incredibly violent, presenting a massive resistance to everything Wynn had tried to do. And the final struggle at the end had pulled down his physical reserves as well as tearing at his mental patterns. Rough.

"Wynn," Jeff kept his voice low. "Captain Merrit's been on the helmet circuit. He's finished a first-run check on that lawyer, Aventi, and the two Hertigen-Ames heirs. They look clean. Bank accounts acceptable, with no recent activity. Davidson thinks he has the prediction error traced to the computer. The captain said the conspiracy case seems to be nonexistent. Also, congratulations on finding the carnate. He has called in a pediatrics man to meet you at the Hertigen-Ames house. I think that's all. He was throwing things out like a popcorn vendor."

"I think he's right about the conspiracy," Wynn said, nodding. More negative policework; tying off the loose ends; facts to go in the records and be helpful on the next case, or the case after. "That infant's ego just sucked him in. I've

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never felt anything so strong. I was fighting to get blocked away from it myself. Its need was powerful . . ." Wynn felt he had a line on the force that had almost trapped him, but he couldn't focus the thought, his fatigue was fogging his reasoning.

At this point, Wynn noticed that Jeff was the only one of his team in the ambulance. "J-M?" he asked. His voice went hoarse, out of control momentarily. It usually took a little time to gear his thoughts back to vocalizations after he'd been working deeply.

"He went back to get the copter," Jeff said. "He'll meet us at Hertigen-Ames' place. We're on the freeway now, headed out there."

The ambulance swayed into a curve, its deceleration leaned everybody forward and the whine of tires came up through the body as the driver dropped it off the air-fans and rolled it through a curving surface road.

"The mother?" Wynn still wasn't up to more than short sentences.

"We left a medic with Doctor Samuels' other assistants," Jeff said. "She's O.K. and will go into Fox Sector Municipal. I brought the doctor and, ah, Bernie, out with us. They are under arrest for felony child delivery. They've had their rights and haven't said anything since."

"The only thing I have to say concerns my patients," Dr. Samuels said. "Since you've taken them out of my hands, there's no reason to chatter."

"They aren't your patients any more, Doctor," Wynn managed to say. "You must know what's happened to that infant—from our uniforms, if nothing else."

We're here, Telepath Keller called into his mind. *What do you want to do first?* He kept the thought patterns to word groups, knowing the effect telepathy would have on Wynn's strained, tired mind.

"I want those two separated for interrogation," Wynn said, vocally. His head *was* splitting. "I'll talk to the assistant first, then the doctor. Take the baby right in to the medical team." He didn't waste time or strength telling the telepath where the team was located. Once in the house, the man could locate—hear for himself—the pattern of the other O/T team.

The ambulance doors opened, Keller's two partners motioned the doctor and Bernie out. The O/T, himself, picked up the baby, plastic cradle and all, and followed them, leaving Jeff free to help Wynn. And Wynn found he needed help. His legs were barely equal to the walk across the drive; the steps to the door were a series of lifts by Jeff. But his strength came back—his exhaustion was mostly mental, excepting the lack of sleep—and by the time they had crossed the entry to the lower-floor rooms where

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Hertigen-Ames had set up his home hospital-ward, the weakness was only a quiver in the knees. Wynn followed Jeff through the door under his own power and with a firm purpose in mind.

"The first thing I want to know, Officer Bernard," he said, making his voice loud and harsh to attract attention, "is this: Why didn't you confirm the carnate in this baby? And worse, man: Why didn't you get in there and help him?" The agent, Bernard, was standing relaxed, at ease in the medical receiving room. He was in the same room with two other telepaths, three now, with Wynn, so there was no need, no way that he could continue to hide the fact that he too was a telepath. The tight block he was maintaining under his surface thoughts was visible to any scan—crystal clear, if puzzling, to these men.

"You knew he was in there and did nothing to help him," Wynn pressed. "I didn't find a single trace. Why? Surely, no cover story is more important than . . ." Given Wynn's sensitivity to the Hertigen-Ames personality, the thought that any telepath could have heard that carnate's lost, swirling thoughts and not helped . . . for any reason, such abandonment was criminal negligence.

Bernard whirled, took three steps to the examining table, pushed the medic back and pulled open the wrappings around the baby's body. He moved fast; he wasn't under guard; no one was alert enough to stop him.

The medic made a grab for his hands, then stopped and looked at the baby, with a harsh, indrawn vocalization.

Mary Shore, shapeless in a green operating gown, but suddenly identified to Wynn by the spike burst of her emotions, said, "Oh, no!" and turned away from the table, a handful of knuckles stuffed in her mouth. The two telepaths, Lewisham and Keller, had probed for Bernard's mind, thinking to blanket any damage he would try mentally, but they had met the visual pictures seen by the angry agent's eyes and recoiled too. Wynn felt their blocks fold into place with a solid excluding push in his direction. Taller, Lewisham's driver, moved physically, but got only as far as the end of the table, where he too ran out of steam and stood, swearing softly in Chicano gutter-slang.

Wynn walked up to the table, wrapping the section of his mind sensitized to Hertigen-Ames in a dulling block, and looked at the bared, red-wrinkled, new-born flesh.

He was looking at the twisted, shortened form of a monster.

Jeff, who had moved up beside him, exhaled his tightly held breath: *"Gaa-aagh!"*

The legs were drawn up, knees level with the hips, and held in a rabbit-like position by thigh mus-

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cles too short to let them extend. The muscles were plain, tensed and corded under the skin. The skin . . . the skin stretched, seemingly too tight, to cover both legs from just above the knees, to the feet, in a pink-red, obscenely-human sausage-case. The right foot was free and perfectly formed. Wynn could see the tiny toenails with the crystal clarity of his shock-stimulated vision. The left foot was gone, the leg tapering conically into the right ankle grotesquery of the flesh-joined legs.

One arm, also the left, was pressed against the infant's side, melted into the contours of his ribs and hip by a covering sheath of taut skin. The bone and muscle structure of this arm showed clearly. A fan of finger ridges, covered like a seal-flipper, capped the tiny hip.

Wynn lifted his head, turning it for a worried glance at the divided-off hospital-bedroom portion of the maternity ward. The bed was empty. Someone, with sympathetic emotional planning and forethought, had moved Mary-Lewis Saunders and her baby into another room in the sprawling house—probably Officer Mary Shore. Very well done.

Wynn drew his concentration back; looked again at the distorted body on the table; forced himself to look for things he knew would be vital to the baby's survival—the head and lungs. Hertigen-Ames, the reincarnated Hertigen-Ames, would need a blood supply, oxygen, and a growing space for the brain, if he was going to survive. The head was well formed, face red, wrinkled and satisfyingly normal. The rib cage was well arched, perhaps larger than most newborns, but it was not deformed.

The doctor, pushing Bernard out of the way, was running his hands skillfully down the spine, turning the tiny body.

"Straight and smooth," he said. He could feel Wynn's probe touching his mind, had worked with O/T's before and didn't block anything. "Rectal area clear." The doctor had his own set of priorities for viable infants.

He rolled the baby face upward to palpate the tiny abdomen, then ducked, and laughed hugely, as Hertigen-Ames reacted hydraulically to the cold air and the pressure. "All elimination systems, very normal," the doctor said, blotting the moisture off the table and covering the indignant anatomy. "He's O.K. in the sex department too, outwardly, at least."

"Now, you see why I didn't report the carnate," Bernard said, his hands clenched, arms stiff at his sides. "For the first time, I came close to taking the *option.* I didn't have the courage to let him live on, in that body . . . But I couldn't . . . I couldn't kill him." He looked up at the two telepaths. "I

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didn't have the strength." He was speaking vocally. His block was up, behind an unreadable turmoil of surface thoughts.

"What are his physical chances, Dr. Hartford?" Wynn was much more interested in the manner, the thoughts, and significantly, that joyous laugh, of Doctor Hartford. He caught the bursts of surprised reaction from Lewisham and Taller. Dr. Eugene Hartford was the chief pediatric surgeon of Lancaster's number-one children's clinic. His operations were prime Telstar broadcasts, world-wide, when he performed them.

"Your Captain Merrit doesn't believe in waking up subordinates," Hartford said. He'd read the surprise on their faces. "After midnight, I don't either. If the case won't keep till morning, it needs the best. Actually, I was researching the statistics of probability governing three queens over four serial spades. I had the queens, but even so, I was glad to come out."

"Tell me, Doctor," Wynn interrupted. "Medically, would it be your opinion to let this infant die, or continue to live?" His question was largely for Officer Bernard's benefit. The man had almost let the baby die. By now he knew he'd made a wrong decision, but Wynn wanted to make it a little tougher. The *final-option* was a heavy responsibility. Bernard should have probed a little deeper before the thought even occurred to him; deep enough to have touched that calling ego-pull and provided Wynn a warning, at least.

"What?" Doctor Hartford sounded like he didn't know the meaning of that decision. With his reported skill and track record, he probably didn't. "Why let him die? He's healthy. Doesn't look pretty, I admit. But there's a lot we can do about that.

"Now, prognosis—" His hands hadn't been still throughout all this; coursing over the tiny body; testing muscle tone; tracing bones. Wynn had been hearing some of this, but it was specialized thought-pattern and he hadn't wanted to interfere with Dr. Hartford's diagnosis by probing deeply enough to get an understanding. "Definitely good," the doctor concluded. "I'll need a complete set of X-rays . . . want to do a radioactive trace-print on the blood vessels; blood and skin matches; complete lab workup—" He broke off. This wasn't what the waiting men wanted to hear. Their attitudes were as impatient with detail as any parents he'd ever talked to. "There is skeletal structure, here." He ran a finger down the prisoned arm. "And in the leg. The foot . . ." He shook his head. "But he won't need that for a long while, and when he does we've got damn good prosthetics for kids now-a-days. He'll be walking by the time he's ready to play Little-League.

"I can begin the separation sur-

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gery right away. Normally, I'd wait until the child was older, old enough to stand the shock of the operation. But with you gentlemen . . . with your ability to buffer him against the shock . . . well, I would be willing to operate whenever you decide his mental state is ready. Not tonight, you understand. I'll need at least a week or more to complete the study . . . Line up a skin graft donor . . ." He had a sudden foreboding of the emergency nature of the case; the cavalier way he had been summoned into attendance suddenly startled him into considering that these policemen might expect him to start cutting within the hour.

"At least a week, Doctor." Wynn smiled thinly, thinking forward to the work he and Lewisham had to do with Hertigen-Ames. "The rush is off for now. You agree then that there is no reason for the baby to die?" His thought was on the *final-option* decision Bernard had mentioned, but he blanketed it inside his screening block.

"Die?" Dr. Hartford missed the implications completely. "Well, he's a baby—hours old. No one can be completely sure for six months or so, but he'll have the best of care. Is he in good shape mentally? You are in a position to know, I understand."

"Yes. In good shape." Wynn opened his probe briefly scanning Hertigen-Ames. He felt Lewisham follow him to listen and observe. *Watch out. He bites.* Wynn spread the memory pattern of the ego-pull into Lewisham's mind. A whistle-symbol of wonder acknowledged the information and Lewisham's blocks thickened.

Hertigen-Ames' mind was still holding the sleep-pattern, drifting easily with no conflicts as yet. But he couldn't sleep forever. Soon, Wynn would have to begin to work him into his body again: into that unfinished, small body and the surgery that was to come.

No wonder the infant ego was so strong! Wynn suddenly recognized the source of that tearing suction that had clutched and dragged at him.

The baby! It had been born with half a body, an arm and leg that didn't function, but in compensation it had been born with a massive, overwhelming will to live. Its desire for personality could never wait on the slow process of building sensory images onto memory chains. It had reached out and grabbed Hertigen-Ames, tearing him across the kilometers, jamming him into the empty, demanding ego. Unfulfilled, it had tried to suck Wynn's trained strength the instant he had come in. Wynn supposed only his identification with Hertigen-Ames, the carnate's disoriented state, and the inertia of two adult minds had saved him.

That will be the key to fitting Hertigen-Ames, came Lewisham's

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thought. *Such a strong wanting and a mature mind-pattern will go smoothly together once we get the physical stimuli organized for him.*

Very likely, Wynn agreed. *There's a possibility toward latent telepathy, too. This house is twenty-odd kilometers from where we found the infant.* He broke off the probe, continued verbally to the doctor: "No, there's nothing wrong with him mentally. He's a little mixed up right now, most reincarns are in trouble . . . but there's a lot we can do about that, too." Wynn let the words hang. Then he took a deep breath to clear his fatigue. "And I've got to start doing it. Doctor, begin your examination and tests now, if you will. I'll give you ten minutes, then I'll need the baby awake and undisturbed for a half-hour . . . for *my* therapy. What do you want to do first?"

"Blood sample. X-rays," the Doctor said. "No. X-rays will have to wait. You don't have any equipment here."

"The ambulance has a portable unit," Taller said. "Get it in, Brooks."

Brooks nodded, took out his blood analyzer and handed it across to Taller, then left to get the X-ray unit.

"Right," Taller said. "Will this do to start, Doctor? The police medical computer can give you standard tests and some others. Tell me what you need." He crossed over to the doctor and they went into a huddle over the instruction card on the cassette.

"Lewisham," Wynn said. "I want you to come in when I . . . wake him up. The first thing I'm going to do is . . ."

"Homeplate to Wynn. Break. Break. Break." The helmet comm-message brought all the officers up short, listening.

"Officer Stanford, you are officially relieved of duty. Effective, now! Officer Lewisham will continue monitor duty on subject. This is a command directive." Then the voice continued, Captain Merrit's less formal tones making him recognizable. "You've been awake and working too long to do a good job, Wynn. Take off and get some sleep. You found him, that's what counts. We'll take over for a bit and I'll get you back on-shift tomorrow. John-Michael, Jeff, take him home. Then sack out yourselves. Homeplate, out."

Wynn slumped. His weariness dragging at him. Captain Merrit had left no room for argument. And, of course, he was right. Wynn had contacted that rapacious newborn ego twice and come out ahead. The third time, in his tired condition, might suck him under—or worse—cause him to lessen the protection Hertigen-Ames needed and let the infant-ego damage or cloud that mind.

Wynn turned away from the table and headed for the door. He

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needed no good-bye. The doctor was intent on his examination and his fellow Officer/Telepaths had heard the order through their helmets. Lewisham and Taller rolled friendly support images around him, and Bernard was still blocked away from reality.

John-Michael asked, "How about giving Mary Shore a ride home, Wynn. Do you mind? She'll be off-shifting with us, since she's assigned to you."

"What? Oh, sure. Pick her up," Wynn said tiredly, turning to look at the girl, but letting John-Michael talk to her.

"Mary, we're off duty," J-M said. "You too. We'll give you a ride home after we let Wynn off. Ready to come?" He spoke evenly, a little loudly. Mary Shore was still staring at the baby Hertigen-Ames, trying to absorb the fact that these patrolmen were calmly, efficiently planning to rebuild and bring to useful life what her eyes continued to call a monster.

It was, perhaps, the first time she understood the depth of the police-work and the O/T teams—her father's work—and John-Michael's work . . .

She nodded, and came toward John-Michael, taking off the green operating gown as she walked. She had a sudden, emotional, need to show her police uniform, become part of this police team with all possible outward symbols. She needed the uniform, not as a shield to keep emotions away, but as a means of sharing them . . .

Jeff backed out the door, Wynn followed him, moving in the fluid semi-ballet of their trained teamwork. John-Michael gathered Mary into the pattern of their formation, and came out last, closing the door.

Watch Commander Segura was standing just outside the maternity ward. In his quiet way, he'd come in, in time to hear Doctor Hartford's summary, see the tormented form of the baby, and then he'd left, unnoticed. He was wearing the long suede bush-jacket he affected when he was off duty and chewing a cigar he hadn't bothered to light. His mind wasn't as hardened as he thought it was.

"Hey, Wynn," he called, when he caught sight of the group. "I stopped by to tell you we closed out your Doctor Warner. Your conspiracy thing hasn't got any more leads. Merrit took us off for the night, since you found your . . . lost one, heh. Good work, *amigo.*"

"Oh, yeah, Harry," Wynn said. *Stopped by? Oh, yes. He's got a ranch out east of here, doesn't he,* Wynn remembered. *And this is the week-end. Sure.* "Thanks. What did you do about Warner?" He asked, because Segura obviously wanted to tell him.

"Nothing, *amigo.*" The cigar came out and a big grin spread across his face. "Nothing. My two detectives brought him in, read him his rights, and when he heard that

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the charge was delivering a child without registration—poof! He produced the registrations from a pocket. All signed, legal and in order. He'd gotten rushed out to here, to take care of your Hertigen-Ames, then called on the car-phone to go to the trailer. He never got near a computer terminal to register anything." Segura spread his hands. "Overwork and oversight."

"Like all of us," Wynn said. "I believe it. It could happen. Anyway, I found out why my man didn't cross-over to the right donor. And we located where he was reincarnated, in time. So, no conspiracy. Sorry."

"*Por nada.* We all get paid for working." Segura started to open the front door for Wynn, then remembered about O/T team habits and let Jeff do it, staying clear of the policemen as they went through the door.

Wynn blinked sleepily, as the bright desert light stabbed into his eyes. The whole night had gone by in the hunt for Hertigen-Ames. The sun was almost clear of the mountains and the light was fresh and shadowless, the way a new day should be.

Osiris, reborn, is greeted by the sun-god, Ra, Wynn thought, a fuzzy remnant of the night's earlier imagery bursting, soap-bubble fashion, in his weary mind.

He felt a tug at his telepathic sense, as Hertigen-Ames came back to conscious control behind him in the house, but he smothered it, along with the *Osiris* image, in a firm block. Hertigen-Ames had left the shadows of his death behind; his reincarnation was successful and he had nothing but new light and new senses to build ahead; Officer Wynn Stanford had a home and a wife, and somewhere later, a new job: It was time for a new day. Nevertheless, the suddenness of the daylight amazed him.

"It's morning outside," he said, as if he were the first to discover the fact. He didn't expect any comment and went straight down to the squad car.

Jeff handed Mary Shore into the front seat, slid into the back with Wynn, and John-Michael powered the TRM&P car away—one, two, three—and they were gone.

"That's the best part of this job, *amigo,*" Harry Segura said softly, talking to the tired officer, half-asleep in the back of the car, even though he was out of sight. "It's always morning outside."

Segura lit his cigar slowly. He could still visualize what he'd seen in the surgery; see the infant Hertigen-Ames—and he did not have the temperament to enjoy that sight—so he was aware of what Wynn Stanford had done, and would need to do again, in the line of duty. His thought said, *Vaya con Dios,* but he didn't voice it: he supposed that young Stanford always did. ■

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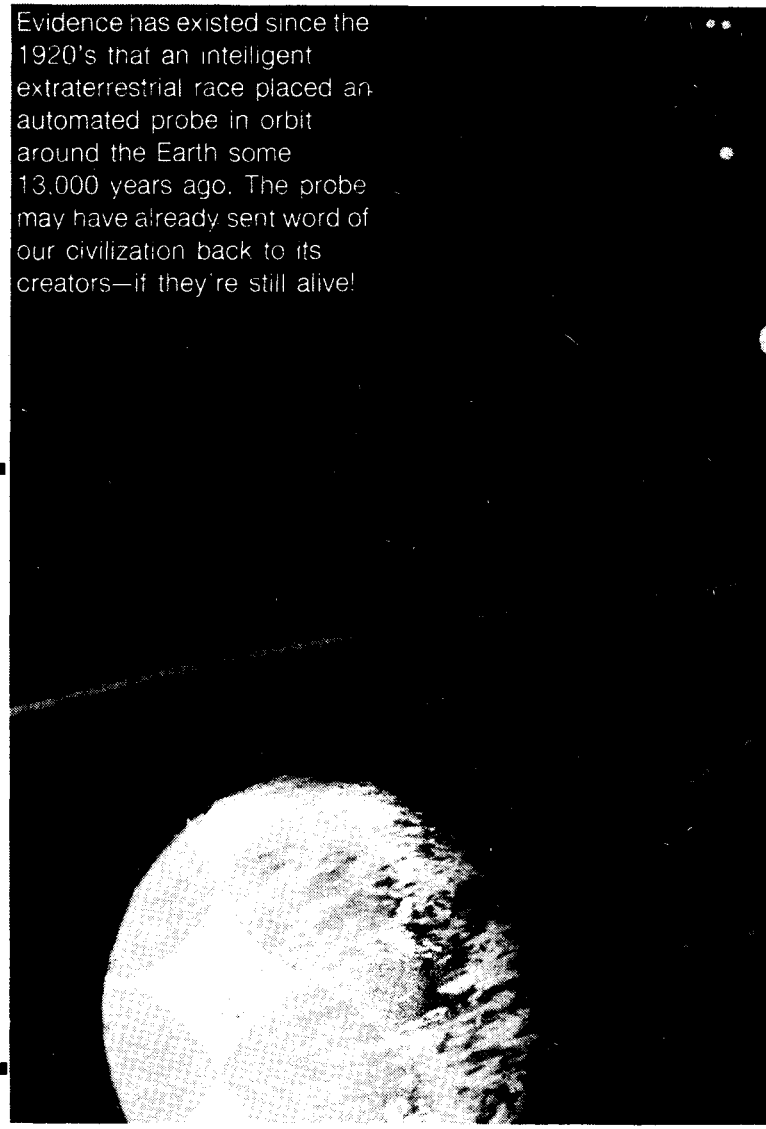
Space Probe from Epsilon Böötis?

DUNCAN LUNAN

Evidence has existed since the 1920's that an intelligent extraterrestrial race placed an automated probe in orbit around the Earth some 13,000 years ago. The probe may have already sent word of our civilization back to its creators—if they're still alive!



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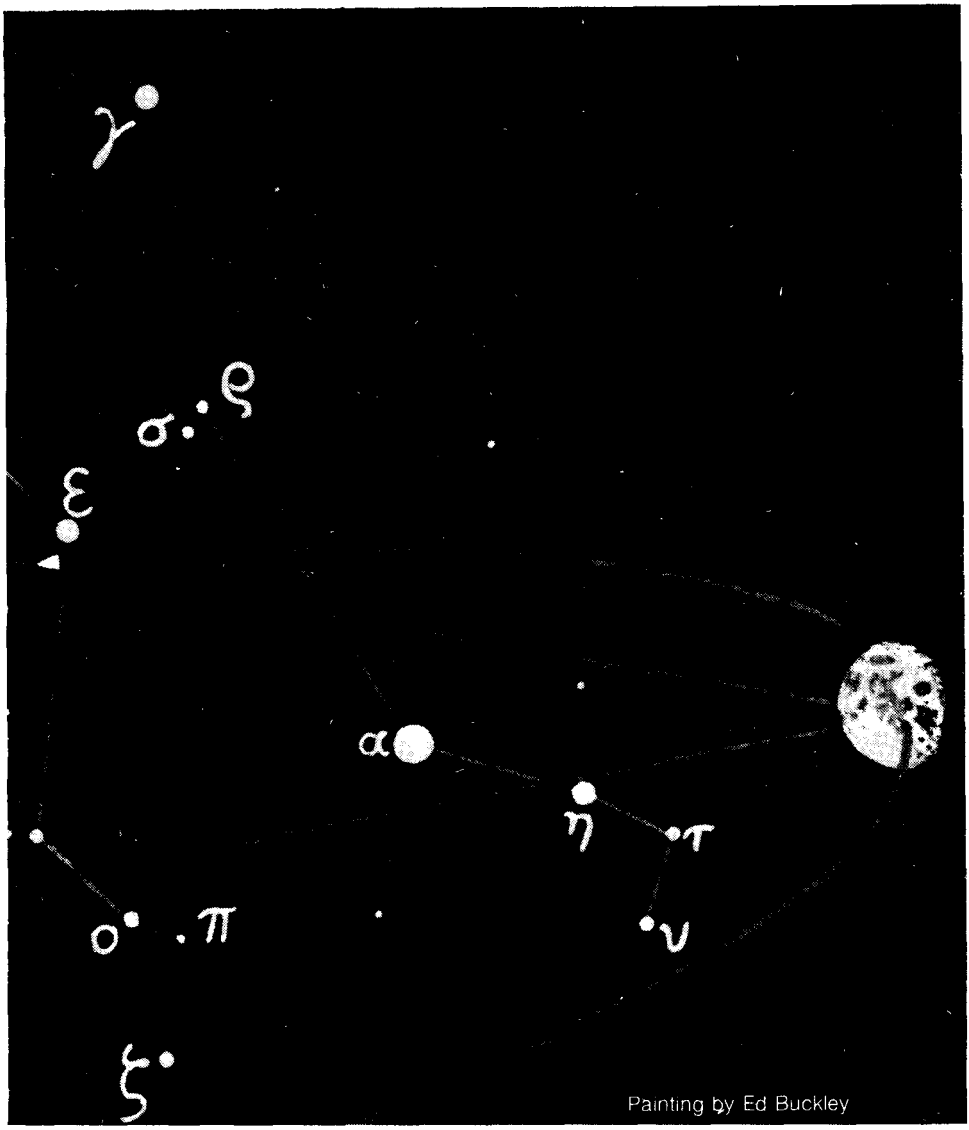

Shown here is the position the probe is believed to occupy, 60 degrees ahead of the Moon in its orbit, equidistant from the Earth and Moon. In the background is the constellation figure of Boötes, with Epsilon Boötis behind the probe.

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At the moment of writing (May 1973) preparations are almost complete for an attempt at communication with another intelligence. More accurately, it will be a response to the apparent attempt of such intelligence to contact us; and paradoxically, although it may have taken 13,000 years to convey the first information, from here on the exchange of ideas should take only seconds.

The method of interstellar communication involved was first suggested by R. N. Bracewell, Professor of Radio Astronomy at Stanford University.[1] In 1960, when Dr. Frank Drake was conducting "Project Ozma" at Green Bank, Professor Bracewell analyzed the most efficient means of contacting other intelligences. If civilizations possessing advanced technology are spread through the galaxy at 10-light-year intervals, Ozma-style communication—radio waves on some obvious wavelength such as the 21-centimeter "Hydrogen Line"—will soon put them in touch with us.

There are only a few likely stars to check within that radius. But precisely for that reason, the chances of such intelligence being so close to us are not good. If high-technology civilizations are on the average 100 light-years apart, the search would involve 1,000 stars out of 10,000 and long waiting periods, eternity in some cases, for such civilizations to appear at each. And if the average separation is 1,000 light-years . . .

The most effective means of initiating contact, Bracewell suggested, would be to send out unmanned messenger probes to the likely stars. Such a probe would orbit in the destination system, "listening" for intelligent radio signals; the most effective test of any it received would be to "echo" them back to the planet of origin. If an intelligent response came from the planet, the probe would begin an information exchange, leading eventually to direct radio contact between the two civilizations at a high level of understanding. "Should we be surprised," wrote Bracewell, "if the beginning of its message were a TV image of a constellation?"

But the punch line of Bracewell's paper, which thirteen years later still causes it to be recalled whenever contact with another intelligence is discussed, came a few lines earlier. If a probe were trying to contact us, "its signals would have the appearance of echoes having delays of seconds or minutes, such as were reported thirty years ago by Stormer and van der Pol and never explained."

Now, from 1967 to 1972 I was President of the Association in Scotland for Technology and Research in Astronautics, of which I'm currently Vice-President. ASTRA is the Scottish equivalent of the British Interplanetary Society,

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and while I was President I conceived and chaired a series of discussions on interstellar travel and communication under the heading "Man and the Stars." For the last part of the project, I undertook research into suggested instances of contact, past and present—and as it happened, I began with the story of the 1920's echoes.

It started in 1927, during research into round-the-world radio echoes (delay time about 1/7 of a second). Taylor and Young in the United States reported hearing echoes they couldn't explain, with delays of only hundredths of a second, coming from 2,900 to 10,000 kilometers overhead. That distance range agrees roughly with the dimensions of the inner Van Allen Belt, discovered by Explorer 1 in 1958, but in 1927 the effect was a mystery.

In December 1927, Professor Carl Stormer of Oslo, an expert on the aurora borealis, chanced to meet a telegraphic engineer named Hals, to whom he mentioned the Taylor-Young puzzle.[2] Hals, however, had personal experience of a bigger mystery: in April and October he himself had heard echoes, on experimental pulses from the Philips station PCJJ at Eindhoven, *three seconds* after the original signal—as if the pulses were coming back from the distance of the Moon. Hals believed that the echoes were being reflected naturally from the Moon itself. However, the Moon is a very poor reflector; when the US Army Signal Corps set out to bounce signals off the Moon deliberately, after the war, they found the task far from easy.

Stormer had a theory about electron streams from the Sun. Believing that the space around the Earth was completely electron-free (far too simple a model, as the Van Allen discoveries showed) he surmised that the 3-second echoes might come from curved surfaces formed by electron streams as they were "bent" by the Earth's magnetic field, to impinge on the atmosphere and generate aurorae. He therefore organized a series of Eindhoven-Oslo experiments, in which three dots (the Morse letter "s") were transmitted at 5-second intervals. Echoes were heard in April 1928, but the results weren't conclusive.

On September 25, new experiments began, with the pulses now 20 seconds apart. Nothing happened until October 11, when Hals phoned Stormer to say that Eindhoven had just come on the air, and he could hear 3-second echoes. Stormer went at once to Hals' home (it took about ten minutes), and arrived to hear signals and echoes ringing through the house. Moments later, however, the echo times began to vary between 3 seconds and 15—and indeed regular 3-second echoes were never to be heard again, after that 10-minute "introduction."

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Caught by surprise, Stormer made only a rough record of the new phenomenon (see later). But he sent a telegram to van der Pol at Eindhoven, and the experiment was repeated that evening. Van der Pol increased the separation between pulses to 30 seconds, but the echoes he himself recorded still ranged from 3 to 15 seconds like those of the afternoon.[3] He went on sending at 30-second intervals, however, and when echoes reappeared on October 24, they ranged from 3 seconds to 30. Similar patterns were heard in February and April 1929, and a very long and complex series was recorded by French experimenters in May 1929.

There were many odd things about the echoes. Three dots (two in the French experiments) were being sent out over two seconds, and the "echo" was a dash of exactly two seconds' duration—yet all experimenters remarked that the frequency of the echo was always *exactly* that of the outgoing signal. Since 1970, US experimenters under Professor Crawford at Stanford have detected a number of apparently natural LDE (Long-Delayed Echoes), consistent with Professor Crawford's theory of beam-plasma interactions in the upper atmosphere—but every instance has showed time compression *and* frequency shift. (Nor have they ever heard more than one echo at a time.)[4] On the other hand, the 1920's echoes were repeatedly described as "loud enough to hurt the ears"—up to 1/3 the intensity of the original signal—which seems to rule out all natural reflection hypotheses, inside or outside the atmosphere. Echoes of 30 seconds' delay were just as loud as those of 3 seconds' delay. And there was the way the echoes seemed to respond, after a slight lag, to each change in the format of the Earth signals—including the extended runs of the French transmissions. In the middle of one such run, the operator "forgot" to send one signal, but echoes came in anyway . . .

(The experimenters concluded from that instance that some echoes were longer than 30 seconds. They were using identifying musical tones to prevent just that possibility of confusion, but for some reason the tone of the echoes wasn't noted just when it was needed—just as no one in the 1920's noticed that the intensity of the echoes flatly contradicted, by the inverse square law, the natural reflection hypotheses they were supposedly checking.)

It took a lot of digging to find all these details, however. (I've given only the major references at the end here.) Last year I was researching possible contact instances for a book on the ASTRA discussions ("Man and the Stars," now much enlarged, Souvenir Press 1974), and after checking the Stormer/van der Pol references given by Bracewell, I thought there was nothing signifi-

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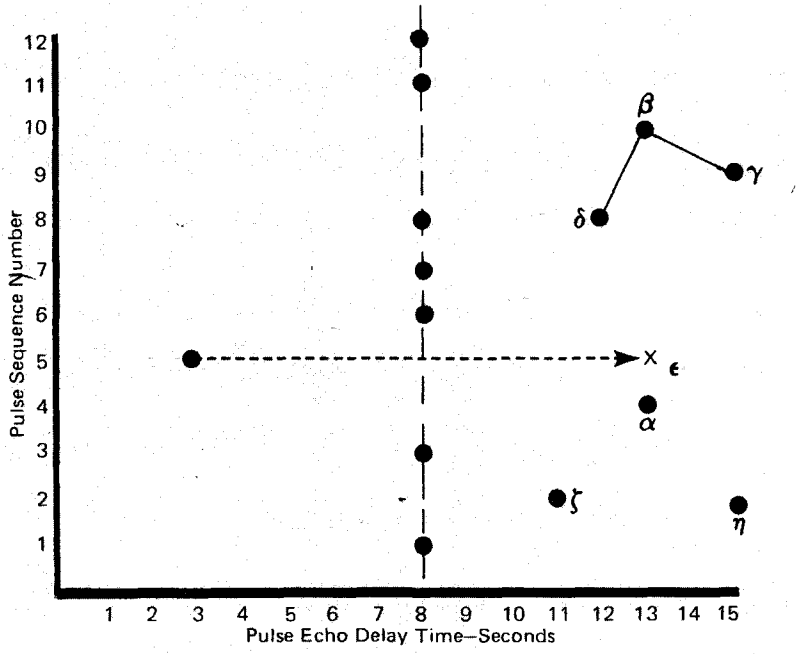

Figure 1 First van der Pol sequence, evening of October 11, 1928 (tentatively identified as an incomplete map of Boötes).

This diagram can be interpreted as demanding an intelligent reply. By moving the 5th pulse (delayed 3 secs.) to a position where it is delayed by 13 secs. (marked X) the constellation Boötes is completed.

This is the required answer and if transmitted back the probe should transmit further information. Note the 8-second "barrier" dividing the diagram into 2 parts. The position of α Boötis—"Arcturus"—can be interpreted as tentatively identifying the map as compiled 13,000 years ago.

A tentative conclusion is that the probe arrived here from Epsilon Boötis 13,000 years ago.

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cant in them. Not realizing that they were announcing a *change* in the phenomenon, I took the varying delay times to show that the "echoes" didn't all come from the same object. Then it occurred to me, however, that if they *did* all come from the same object, assumed *for the sake of argument* to be a space probe, then the varia-

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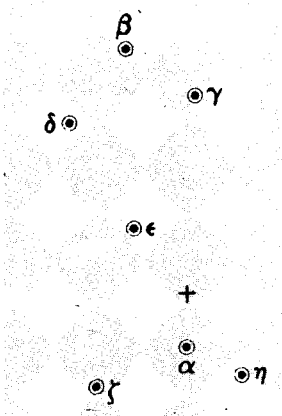

Figure 2 (a)

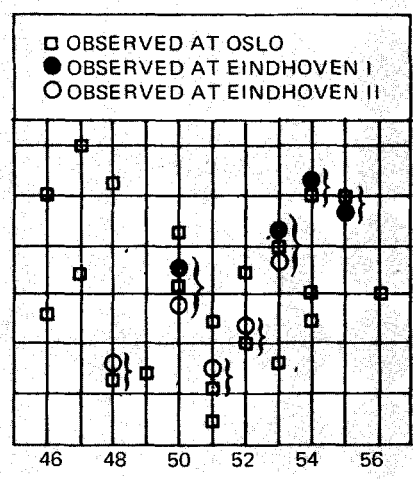

Figure 2 (b)

tions in delay time must be meaningful.

Van der Pol's evening sequence of October 11, 1928 goes 8 seconds, 11, 15, 8, 13, 3, 8, 8, 8, 12, 15, 13, 8, 8, which isn't the standard sequence of prime numbers "supposed" to be used in contact between intelligences—but as Bracewell wrote in 1962, prime numbers "only prove that the designers of high-power transmitters can also count . . . not appropriate to signals in the pre-contact phase." The echo pattern seems random, in fact. But Bracewell thought that a space probe might send us a star map, and since the stars are placed at random in the sky the delay times could be graphical coordinates.

Figure 2 (a) The constellation Boötes from Norton's Atlas, epoch 1950. † marks the position of Arcturus (α Boötis) 13,000 years ago.
Figure 2 (b) A reproduction of the published part of the October 24, 1928 sequence from "Polar Aurora."

When the echoes are graphed with delay time on the y-axis (standard scientific practice, used for most of the 1920's results), nothing interesting appears. With delay time on the x-axis, and the two double echoes noted by van der Pol each shown on the same line, we get the graph in Figure 1. When I first drew it, my reactions went, "That looks more like an intelligent signal—in fact it looks familiar—I know what that is!"

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If Figure 1 is an intelligible diagram, it's divided into two parts of equal area by the vertical "barrier" formed of 8-second dots. On the left there is only one dot, at three seconds—a unique echo, the only time the three dots of the original signal came back. (Still without time compression or frequency shift.) And on the right (compare Figure 2) there is a figure with a strong resemblance to the constellation Boötes, the Herdsman. Of the brighter stars, only Epsilon (Izar) is missing; but if the 3-second dot is transplanted across the barrier, to the corresponding position on the right, it fills the position of Izar and completes the constellation figure. Epsilon Boötis is presumably the star the probe came from. If we had recognized the pattern in 1928 and returned it (completed) to the probe, it would have known that it had made contact with intelligence. In other words, the probe was trying to rule out natural echoes from *Earth*. Perhaps the seven dots in the "barrier" were meant to tell us that there should be seven dots on the right of it.

The stars shown are all of first, second, and third magnitude, except for Zeta Boötis at bottom left. From the time of Hipparchus to the present day, however, the apparent magnitude of Zeta has usually been given as three.[5] There is very good reason to think that the map really is an old one: Arcturus appears about seven degrees from its present position, which is below and right of its apparent position in Figure 1. (See also Figure 2). Arcturus has one of the largest known angular Proper Motions, however: it moves 2.29 seconds of arc *southeast* each year. That's the apparent diameter of the Full Moon in only 800 years. Arcturus also has a large radial velocity toward the Earth, which confuses the issue; but if we take the motion to average 2″ per year over the period, the indicated seven-degree shift would put the map's date at 12,600 years ago. That presumably was about when the probe arrived, compiling its star maps prior to signaling home.

From a graph like this the date can be determined only roughly, but confirmation that the period is about 13,000 years is apparently given by the sequence of October 24, 1928. Unfortunately less than half of the 48-echo sequence was published (Figure 2b); if, however, the rest of the sequence can be traced and the dots fall into the expected star positions, the space probe hypothesis will be in a very healthy state.

The published part of the sequence, graphed as in Figure 3, seems to cover the swath of sky from Vega to Corona Borealis. Once the distinctive "keystone" figure of Hercules is recognized in the 13-to-21-second part of the graph, the rest of the identification is fairly easy. We have all the first,

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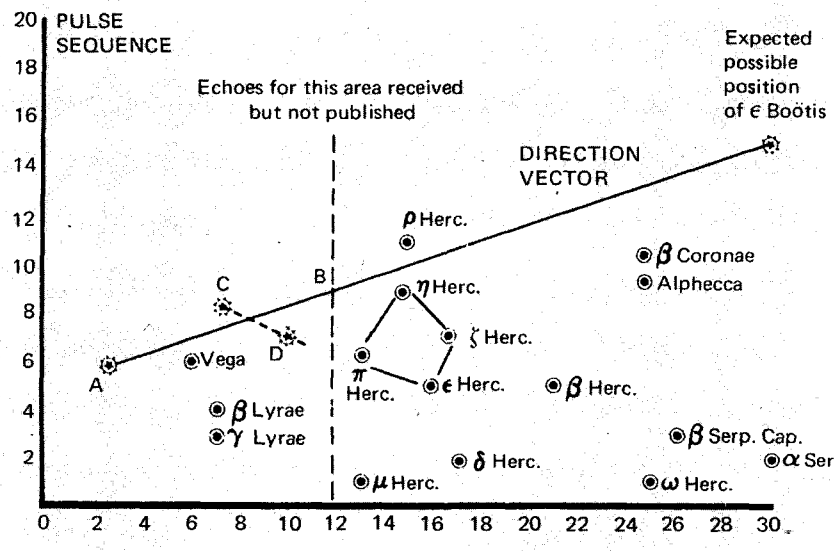

second and third magnitude stars again; we also have three fourth-magnitude stars (Xi, Omicron and Omega Herculis) which bring out the distinctive star pattern of the area. If we had the rest of the sequence, it should go on to Boötes, Canes Venatici and Ursa Major (see Figure 5).

In representing any such large area of sky, allowance has to be made for the curvature of the heavens. We normally draw "planispheres" or else segments projected on the celestial pole, but apparently that wasn't the system used by the probe. If a tracing of the Figure 3 graph is laid over a star map, it has to be rotated to get

Figure 3 The published part of the October 24th sequence with tentative star identification.

In this hypothesis ε Boötis "" should be pulse No. 15 with an echo delay of 30 secs. Star pulses are marked "⊙" Vector pulses are marked "★"*

Point "A" is the North Celestial Pole 13,000 years ago. The line through "A-B" points to ε Boötis. The vertical line "B" at 12 secs. and the vector "CD" mark the rotation limits to align the curved celestial area with a straight line map. The unpublished sequences should cover areas of Boötes, Ursa Major, Canes Venatici, Leo, and possibly include further reference points and vectors.

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first the Lyra section, then the remainder, to fit the stars. (In trigonometry, I believe the system is called a "satellite grid," perhaps a nice phrase.) Now in Figure 4, there are four dots which do not correspond to any major stars, marked A, B, C and D. If the graph is rotated about A until the vertical line through B falls parallel to CD, the required fit with the stars is obtained. Farfetched? But A is the position of the North Celestial Pole, by Vega, 13,000 years ago, and the line AB *points to Epsilon Boötis.*

Now, major misconceptions have developed about this work, due partly to the insistence of the press on calling me a scientist or astronomer. Eminent scientists have then been asked to comment on the star map interpretation, and have replied, "Lunan's work is unscientific—he has no evidence that a space probe exists." But I never claimed to have such evidence; my qualifications are in English and philosophy, and I've produced a logical analysis of the echo patterns, asking, "What meaning do they convey, if we *assume* that they come from a probe?"

Let's take that interpretation one stage further, therefore. (If we don't, we're almost at the end of the data.) Apart from the French records, the only other published LDE patterns are in Stormer's afternoon record of October 11, 1928. We know that record is inaccurate, and moreover that it contains multiple echoes and one or two unusual ones, none of which are distinguished in Stormer's rough list of delay times. So (carefully distinguishing assumption and hypothesis from evidence), *how few* changes have to be supposed to turn Stormer's record into star maps consistent with the two we already have?

Only two changes have to be supposed, in fact, out of a total of 43 echoes, in order to obtain recognizable star maps. The 43 echoes were in four distinct groups, of which the first appears in Figure 4 with my suggested correction. If we suppose that the delay times of the eighth and eleventh echoes were accidentally transposed, then in Figure 4 we obtain a map of the Big Dipper as it was about 13,000 years ago; the other stars above mag. 3, namely Alpha Draconis (Thuban), Psi Ursae Majoris, and Canes Venatici, are also shown. The apparent displacement of the Pointers, Dubhe and Merak, gives the date of the map. A and B, the first and last dots of the signal, do not correspond to any major stars; they do, however, form a line pointing right through the drawing to Epsilon Boötis.

Turning to Figure 5, which is a map of the whole area discussed, here is the suggested sequence in chronological order. Afternoon 11.10.28, 20-second Eindhoven pulse spacing, first group: Ursa

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Major, Canes Venatici. Second and third groups (both short): segments of Draco. Fourth group (admittedly the weakest identification, and supposing one timing error): swath of sky from Delta and Epsilon Boötis to Mu Virginis and Beta Librae. Dots not corresponding to stars set limits of rotation, and point to Epsilon Boötis.

At that point Eindhoven signals stopped. When van der Pol began again in the evening, he received the critical map of Boötes to which we should have made an intelligent reply. The first four maps were leading up to that; remember that the echoes were still 3-15 seconds, although van der Pol had increased the signal spacing to 30 seconds. But the 30 seconds' spacing was maintained, and the probe apparently compiled a new map for October 24—48 units by 30, where the others had been 15 by 15. That map covered the swath from Vega to Alpha and Beta Coronae, as far as we have it; it apparently went on through Boötes; and there would still be enough dots left to cover Ursa Major, Canes Venatici and Draco. In other words, the big map covered most of the area of the previous five; if we had it in full, we could set the dotted boundaries of Figure 5 more accurately. Looking at the rough square we have, however, it seems clear that the orientation of the whole set of maps is related to Epsilon Boötis.

Epsilon Boötis was named Izar by the Arab astronomers. More recently Struve named it *Pulcherrima*, "The Most Beautiful." In the telescope it's a double star: the major is described as yellow or orange, the minor as blue. Trying to find more definite information has been frustrating. By a slight majority the sources give its distance as 103 light-years, but values ranging from 70 light-years to 230 abound in the literature. Disagreement over the spectral types of the two suns is even worse: many sources call it a K1 giant, which fits the observed magnitude at 103 light-years, but others give A0, G8, et cetera, which don't fit anything, least of all the values given for the minor sun. Most sources call that A0. But for an A0 star, like Sirius, to have the observed apparent magnitude of 6.3, it would have to be more than 500 light-years away! Other values given are F2 (better) and G8. If the major really is a K1 giant 103 light-years away, the minor might be expected to be about F6. We have appealed to current research programs to give us definite values.

At least all sources are in agreement that the stars are about 2″.8 apart, which at 103 light-years would be a distance of more than 8,000 million miles, and should allow planets to exist there. On the other hand with the major sun already at the K1 giant stage, conditions there must be pretty rough. When a star leaves the stellar

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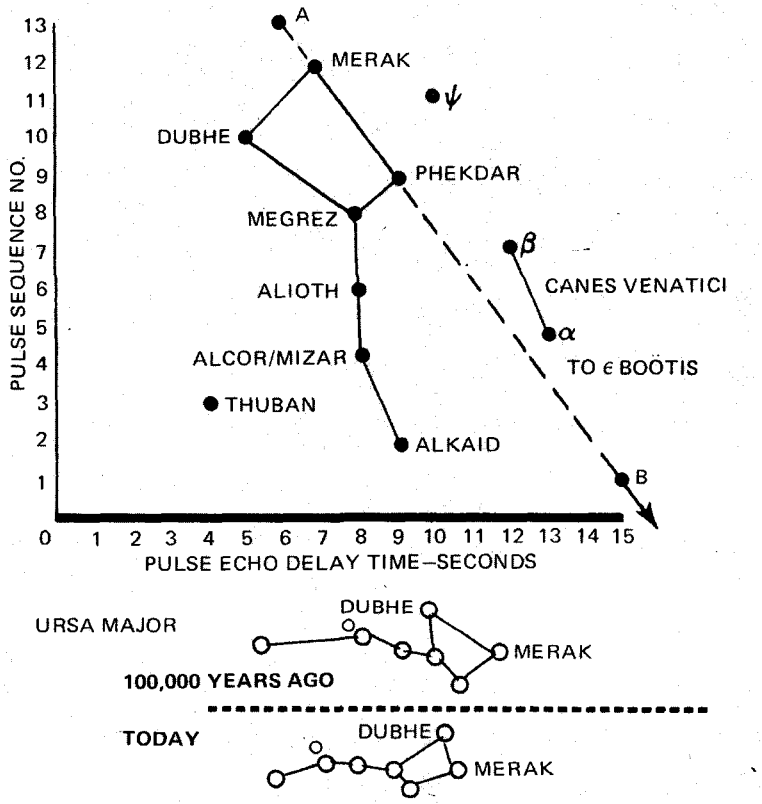

Figure 4 The Stormer sequence of October 11, 1928.

This is interpreted as a possible map of Ursa Major by assuming that the delay times for echoes Number 8 and 11 are in reverse order to that reported by Stormer.

'A' and 'B' the first and last pulses form a reference vector pointing to ε Boötis.

"Main Sequence," that is, exhausts the reserves of hydrogen at its core, it first contracts, emitting higher levels of ultraviolet and X-radiation; then as "helium burning" begins at its core the outer layers of its atmosphere expand, forming the tenuous envelope of a giant star. The star becomes an orange giant, then red; but although its surface temperature drops because of its expansion, the total radiation

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emitted by the star is growing all the time. Epsilon Boötis A is now generating 100 times the radiation of our Sun.

Maybe, then, life was already highly advanced in the Epsilon Boötis system when the major sun's Main Sequence lifetime ended, and intelligence appeared as a mutation during the radiation bombardment. Steadily worsening conditions from then on would make the mutation favorable, and force it on by ruthless natural selection. There would be a race to establish technological civilization and achieve spaceflight before all life was forced up to the poles and finally rendered extinct. If our Sun had been growing in the sky during man's two million years or so on Earth, we'd just about have made it.

As the Epsilon Boötis people sent out space probes, therefore, they weren't conducting a dispassionate search for contact with other intelligence, as advocated by Professor Bracewell. Their space program was a survival effort, probably the total commitment of the race. Didn't somebody ask recently in Analog how any visitors to Earth would finance their space program? Military-style overdesign may also explain the probe's 13,000-year operational life. But the program wasn't a military one in the sense of a campaign: assuming that any intelligence contacted would be more advanced than they were (Dr. Drake has pointed out that we can expect the same experience), the probe makers were appealing for help. If we make contact with the probe, we can expect heartrending appeals for secrets of advanced interstellar flight and/or locations of unoccupied, habitable worlds.

We would expect that anyone in that situation would start telling us about their environment at some early stage. If there's any common ground between one intelligence and another in the galaxy, such data would in itself constitute an appeal for help: a hostile intelligence, hoping to pull off a planetary takeover, would keep quiet about its problems. The most important of the "panels" of echoes recorded on May 9, 1929, sets the key information before us: it's pretty much the kind of "dot-picture" Frank Drake and others have suggested for interstellar communication, except that it doesn't tell us what they looked like. Where one intelligence was appealing to another through logic, physical appearance might seem pretty irrelevant.

The May 1929 records were obtained by Galle and Talon, on the French naval vessel *L'Inconstant*, during an eclipse of the Sun at Poulo-Condere in Indochina.[6] They had orders to study other effects as well as LDE, but the echo effects were so spectacular that they became the chief study of the expedition. On May 8, signals were sent

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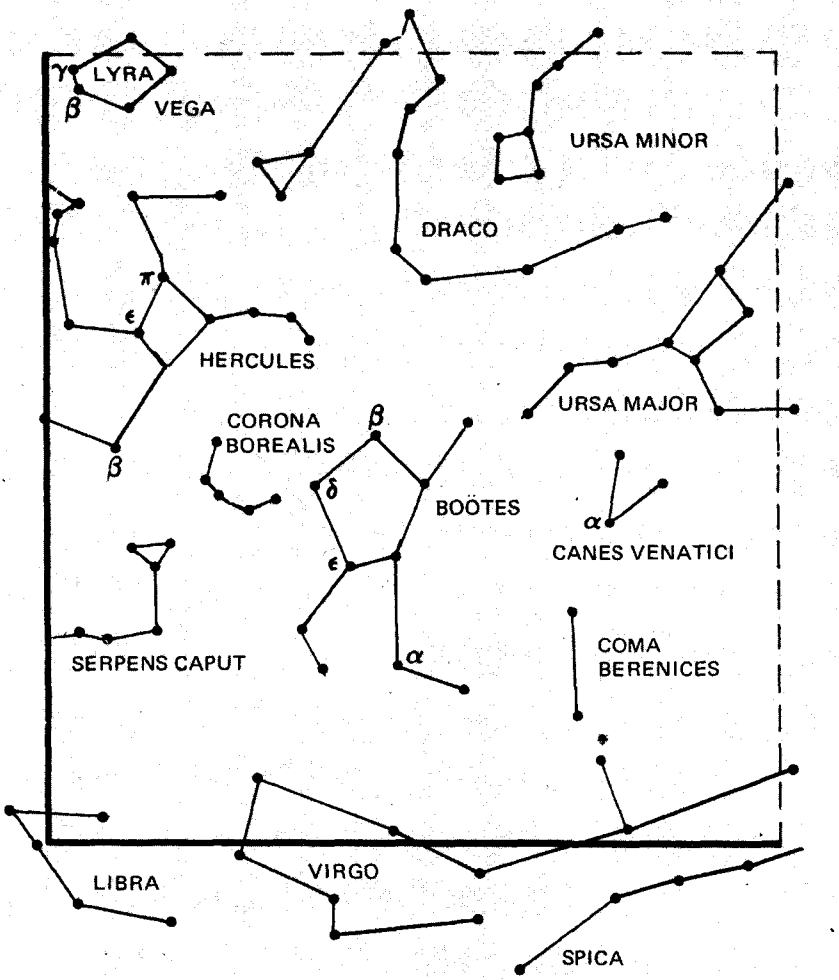

Figure 5 The approximate area of sky covered by October 11, 1928 and October 24, 1928 sequences. The boundaries are approximate since the sequence of October 24, 1928 is incomplete.

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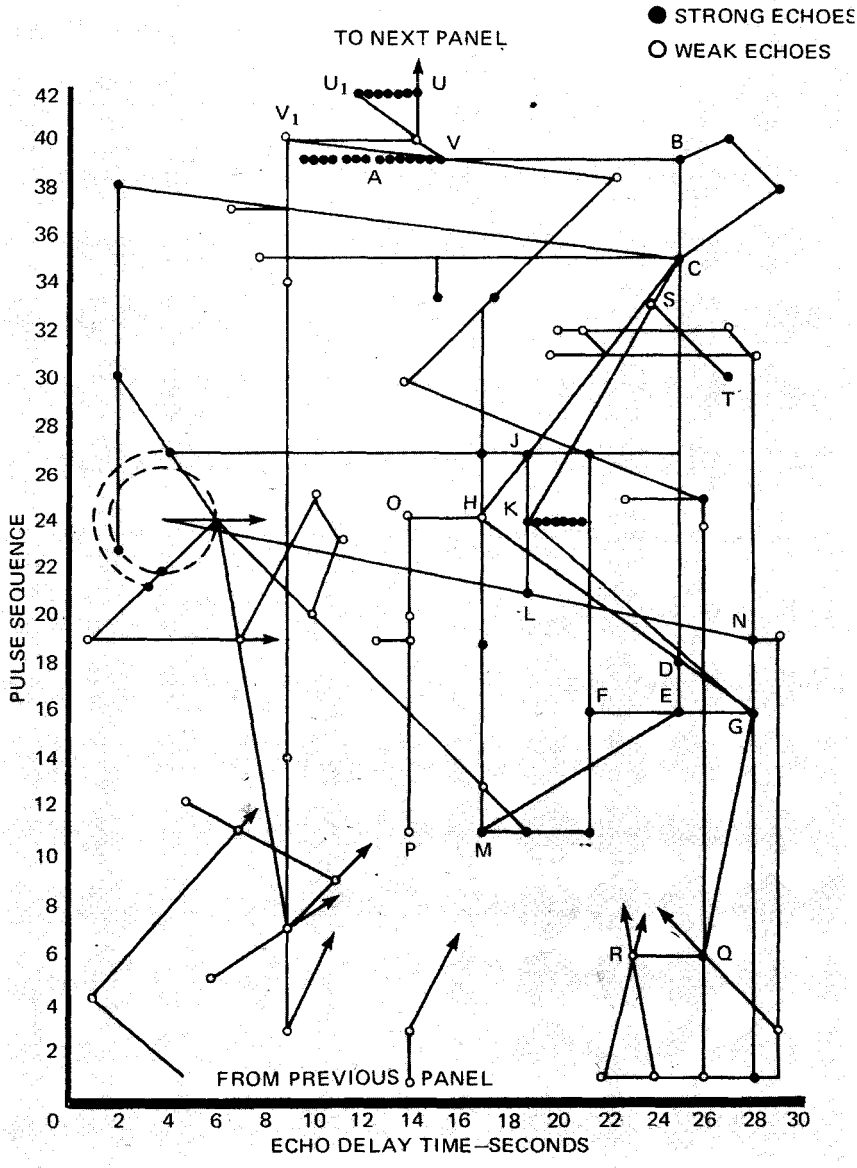

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every 30 seconds for the first 10 minutes of every half-hour, from morning to evening. On May 9, the day of the eclipse, signaling went on all day; and on May 10, signals were again sent for the first 10 minutes of each half-hour. Echoes were heard, sometimes in large numbers, on almost every pulse sent out; for the first time they were clearly divided into two groups by amplitude, the weak echoes being about one percent of the outgoing signals' intensity, the strong ones 1/3 to 1/5. Echoes stopped shortly before the eclipse, and began again halfway through it: the pause attracted much attention (it was first reported to have coincided *exactly* with the eclipse) but in fact there were several such gaps during the day, and they can be interpreted as "natural breaks" between one message pattern and the next.

The May 1929 echo patterns divide up naturally into "panels" of about 40 signals' duration, on average. They are much more complex than star maps, and my suggestion is that the probe was now sending more advanced information, in a "puzzle" form, to try to attract interest and attention from the supposedly advanced intelligence on the planet. May 9, panel 7 (Figure 6) is apparently the starting point: its main figure, the upright rectangle, is really conspicuous in the sequence, especially with the "starting rows" of high-intensity dots in rapid sequence round about it.

Panel 7 can be interpreted as a "join up the dots" puzzle. (Try to imagine it without lines to begin with.) The Boötes figure appears at upper right, and marking it off gets us started on joining up the dots as we're supposed to do. The starting rows at the top of the figure contain 7 dots, 4 dots, 3 dots and 7 dots, so we're looking for sevens—and there are 7 dots on the left-hand side of the big rectangle. Having so much, the sequence then becomes so clear, each line "dictating" the next, that it can be read off in English:

AB—Start here.
BC—Our home is Epsilon Boötis
CDE—which is a double star.
FG, GH, CH, GK—We live on the sixth planet of seven—
JKL—check that, the sixth of seven (they read from right to left!)
EM—counting outwards from the sun
FEG, GN—which is the larger of the two.
HO, OP—Our sixth planet has one moon, our fourth planet has three, our first and third planets each have one.

Figure 6 One of the several sequences recorded on May 9, 1929. Interpreted as a presentation of data concerning the possible Epsilon Boötis planetary system. Panel 7 in the sequence. For explanation see text.

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GQ, QR—Our probe is in the orbit of your Moon.

ST—This updates the position of Arcturus shown in our maps.

The prevailing orientation of the panel is right to left, as it is in most of the others. There is a vertical line of seven small dots left of the main figure (with only the sixth planet having its moon beside it), but its function is only to lead into the main figure.

On the extreme left we have a distinctive figure (also found in other panels) which gives the scale of the planetary system, by relating the orbits of the sixth and seventh planets to the distance between the two suns. The sixth planet is something over 1,000 million miles from the sun, and therefore can't be the original home of life: if it were, the sun would have had to be AO when on the Main Sequence, and wouldn't have lasted long enough for life to get started, much less evolve to intelligence.[7] On the other hand, if the probe makers were a cold planet life-form, their probe wouldn't end up orbiting Earth in *this* system. But in panel 7 there are two lines, A1C1 and B1C1, leading from second-planet to sixth-planet dots. Later panels state explicitly that the probe makers migrated from the second planet of Epsilon A to the sixth, at who knows what cost in effort and suffering, before mounting their interstellar program.

Later panels also confirm the hint given by the sequence VW, WX, XY, YZ, and reinforced by X1Y1, Y1Z1, that the space probe came from the *seventh* planet. From that launch point the probe makers could have boosted the probe on its way, using the gravitational fields of the two suns as a slingshot, in a system described by F. J. Dyson back in 1963.[8] It all fits together—and that last suggestion takes care of all the dots in panel 7.

How can it all be put to the test? There are internal tests which can be made—for example, are the indicated orbits stable? The best indication I have so far is that if *our* system had a minor sun at the distance of Uranus, Earth's orbit would still be stable. That's a distance ratio of very roughly 19:1. Is 7:1 stable in the greater scale of the Epsilon Boötis system? Definite values for the spectral types of the two suns will also be a great help. As noted before, if we can trace the remainder of the October 24th sequence that may also verify the star map hypothesis; but the most important test, of course, is to attempt to locate and contact the probe.

One of the biggest surprises in my research was that weird LDE effects continue to the present day. Radio operators find their own voices coming back to them, a most startling experience by all ac-

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counts.[9] (NB: no time compression, no frequency shifts.) It is said that Sputnik 1 was heard again on the air, a year after it was first launched, months after it burned up in the atmosphere. We're also investigating stories of long-delayed TV echoes, and echo interference with communications satellites. In other words, the probe may still be trying patiently to make contact with us.

The search for the probe is being organized by Mr. A. T. Lawton, of EMI Limited, who has placed several thousand dollars' worth of equipment at his disposal. Using channels free of man-made and ionospheric interference, we shall send pulses (much stronger than those of the 1920's) to the Moon Equilateral positions, one of which the probe is believed to occupy.[10] (The three-second echoes indicate that the probe is at the distance of the Moon, and the two most stable positions would be the Lagrange or "Moon Equilateral" points in the Moon's orbit. In one of those points, equidistant from the Earth and Moon, the probe would not have to allow for lunar perturbation of its orbit when signaling home. The indications are that it chose the leading equilateral, 60 degrees left of the Moon as seen from the Northern Hemisphere.)

The transmitter array, which is equatorially mounted, has been set up at Twickenham in southern England; the main receiver, an extremely sensitive and directional satellite tracking antenna on an altazimuth mount, is at Shepperton. With the help of listening posts elsewhere in the United Kingdom and (we hope) abroad, it should be possible to pinpoint the source of any echoes received. If the echoes we hear come from within the atmosphere, then at least the 40 years' mystery may be solved--if we can eliminate time compression and frequency shift; but if they come from the orbit of the Moon, at the intensities noted in the 1920's, it's going to be difficult to claim that they're natural.[11] If they begin a sequence of intelligible signals, then we shall really have hit the jackpot.

If the probe is contacted, this is going to be a memorable year. Probably the first priority will be appropriate international supervision of further contact, lest the great powers use nuclear weapons on it, or worse still on each other, out of panic or suspicion. The next will be to shift to some more advanced mode of communication such as television. On the basis of the probe's sophisticated decisions, Mr. Lawton (head of EMI's computer research) believes that it may carry more information than the Encyclopaedia Britannica. It would take a million years to get it all using LDE, but only months by television. (Let's hope we don't take a million years to understand it.)

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And beyond that, we have to consider contact with the probe makers themselves. Does the updated map of 1929 mean that a signal has been sent, announcing the probe's activation?

If so, it's not likely that anyone will receive it. If Epsilon A is now 100 times as luminous as our Sun, the sixth planet is still not as hot as Earth is now; and since Epsilon Boötis grew significantly brighter during the Nineteenth Century, the planet has presumably been a frozen waste for the last 13,000 years. It would be only a temporary refuge for the Epsilon Boötis people, and there would be nothing to keep them there once new homes were found. Where are they now, and how long will it be—if the probe exists and we can learn from it—before we meet up with them? ■

ABOUT THE AUTHOR

Duncan Lunan organized and chaired the "Man and the Stars" discussions on interstellar travel and communication which were conducted during his term as president of the Association in Scotland for Technology and Research in Astronautics (ASTRA). He is currently serving as vice-president of ASTRA, as well as pursuing his interests in science fiction, astronomy, and spaceflight.

REFERENCES

[1] R. N. Bracewell, "Communications from Superior Galactic Communities," *Nature*, 186 (1960) p. 670; also in *Interstellar Communication* (see below).

[2] C. Stormer, *The Polar Aurora*, Oxford University Press, 1955.

[3] B. van der Pol, *Nature*, 122 (1928), p. 878.

[4] Crawford, Sears & Bruce, "Possible Observations and Mechanism of Very Long Delayed Radio Echoes," *Journal of Geophysical Research, Space Physics*, vol. 7, no. 34, 1.12.1970, pp. 7326-7332; and private correspondence, Prof. F. W. Crawford, 1972.

[5] C. Flammarion, *Les Etoiles*, Paris, 1882.

[6] J. B. Galle, "Observations relatives à la radio-électricité et à la physique du globe," *L'Onde Electrique*, 9 (1930) pp. 257-265.

[7] S. H. Dole, *Habitable Planets for Man*, Blaisdell, New York, 1964.

[8] F. J. Dyson, "Gravitational Machines," in *Interstellar Communication*, ed. Cameron, Benjamin, New York, 1963.

[9] Villard, Graf and Lomasney, "There is no such thing as a long-delayed echo $\overline{\text{AR}}$. . . a long-delayed echo $\overline{\text{AR}}$," *QST*, February 1970.

[10] D. A. Lunan, "Spaceflight," vol. 15, no. 4, April 1973 (British Interplanetary Society, 12 Bessborough Gardens, London SW1V 2JJ).

[11] A. T. Lawton, in the work cited above.

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The Astounding Dr. Amizov

And here's a bit of fiction that is stranger than fact.

R. F. De BAUN

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It sounded as if the auditorium was filled to capacity. From his hiding place backstage Paul could hear the audience growing restless, eagerly awaiting the arrival of the scheduled speaker. Paul was waiting for him, too. *This could be the most important night of my career,* he thought. *The most important night of my life!* Paul was waiting in the shadows near the artists' entrance for the astounding Dr. Amizov.

Dr. Igor Amizov.

The name echoed in Paul's mind like a sacred incantation.

Dr. Igor Amizov.

In the pantheon of science-fiction greats that name stood above all others. Jules Fern, H. G. Welps, Brad Raspberry—none of these could match Amizov's imagination, his wit, his style, or his sheer *prolificity.* Who could ever forget "Crustacean," "Crustacean and Umpire," and "Second Crustacean," his classic trilogy about a race of giant crabs who came out of the sea to win the World Series? Or his moving "I, Rowboat," the tragic saga of an intelligent dinghy in a world of hostile humans?

And Amizov's genius was not limited to fiction. His fertile mind had parlayed a Ph.D. in biochemistry into scores of books explaining virtually every scientific discipline to the layman. Astronomy, anatomy, mathematics, physics, botany—no scientific stone was left unturned in his myriad works. Nor had he neglected the humanities. Amizov's guide to Shakespeare, "From One Bard To Another," in which he revealed William Shakespeare to be the true author of all Sir Francis Bacon's works, was required reading for any serious student of English literature. And his definitive treatise on the Bible, "The Word According to Amizov," was credited with providing significant impetus to the current revival of religion among the younger generation.

In addition to his writing, the good doctor was an esteemed professor at a prestigious Eastern university, an adviser to several government agencies, an officer in a host of scientific and literary societies, and former champion on the professional bowling circuit. The Russian-born immigrant author had done the work of a dozen gifted men and become a legend in his own time.

How do you start a conversation with a legend? Paul wondered. "Dr. Amizov, I presume?" sounded too formal. "What's up, Doc?"—too flippant. Paul had come to the auditorium that night with a determined plan, but his resolve was quickly fading in the darkness.

Paul Franco hoped one day to be a great science-fiction writer, like Amizov, and he had brought his recently completed first novel to show the master. If he could only get Amizov to read it, maybe get a few suggestions, a little encouragement. Maybe Amizov would

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like it so much he would put in a good word to a publisher. Maybe the book would become a best seller. Paul would win the Hugo, the Nebula, and/or the Pulitzer. He would become rich and famous and write dozens of great science-fiction novels, as Amizov had. He would surpass Amizov and become the greatest sci-fi scribe of all time!

Paul shifted the loose pages of his manuscript from hand to hand as he nervously wiped his damp palms on his trousers. *It's a crazy idea,* he thought, *but it just might work.*

Suddenly the door next to Paul opened and a startling figure rushed by. It was Amizov. The doctor did not look quite like Paul had imagined. It was the familiar mischievous face that had beamed at Paul from the back covers of hundreds of books all right, but instead of the "giant" of literature Paul had anticipated, Amizov had the size and appearance of a slightly overgrown dwarf.

Paul's tongue felt too large for his mouth. His Moment of Destiny had arrived. Amizov was only a few feet from him now, fumbling with some notes as he stood in the wings about to go on. Gathering his courage, Paul leaped out of his hiding place and confronted the unsuspecting author.

"Dr. Amizov—" he began, his voice booming in the backstage stillness.

The startled maestro nimbly dodged away from Paul.

"Help! Assassins! Assassins!" he cried, covering his head with his hands.

Paul felt faint. "Dr. Amizov, I just want to talk to you!"

Amizov cautiously peeked at Paul from behind some scenery. "Eh?" he queried.

"Please, sir," Paul stammered. "It will just take a few moments of your time."

"What is it you want, boy?" demanded the wary doctor, keeping his distance.

"Well, sir, you see, I'm a great fan of yours—"

Amizov cut him off: "Yes, yes, I know . . ."

Paul was mystified.

"How did you know that?"

"Because *everyone* is a great fan of mine," explained the impatient professor.

Damn clever, these cossack authors, reflected Paul. He pressed on: "But I'm more than just a fan, Dr. Amizov. Ever since I was a little boy I've wanted to be a great science-fiction author like you. When the other kids were playing cowboys and Indians, I was playing Amizov and apostrophes. You've been my idol, my inspiration. And now I've written my first novel and I was hoping, that is, your opinion, if you'd be willing to read, I mean, it would be a great honor . . ."

"If you can't write any better than you can talk you're in big

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trouble, boy," observed Amizov. Then he seemed to mellow when he saw the crestfallen look on Paul's face. "Don't worry, lad," he continued softly. "I can still remember how hard things were when I first started writing. Looks like there's no light at the end of the tunnel, eh? All right, I'll take a look at your book for you."

"Oh, thank you, sir!" cried Paul, thrusting his manuscript into Amizov's hands. "I can't tell you how much this means to—"

Paul was drowned out by a raspy bellow from behind the stage door: "Iggy! Iggy, where are you?!"

Amizov turned pale. "It's Mr. Fagin," he whispered. "My agent . . ."

The door burst open and a paunchy, weasel-faced man chewing on a large cigar stormed up to Amizov and grabbed his arm.

"Where have you been hiding?" he demanded. "You were supposed to be lecturing ten minutes ago!" His voice had the tonal quality of fingernails scraping across a blackboard.

"I was just talking to this young—" began Amizov.

"No time for autographs now, Iggy," interrupted Fagin, pulling him away. "The audience isn't going to wait forever. How many times do I have to tell you 'Time is Money'?"

"Yes, I know," murmured Amizov. "And ten percent of it is yours . . ."

"You'll have to cut this lecture short," said Fagin, dragging the cowed doctor onstage. "I've booked a midnight appearance with the local persiflage society and we have to catch a flight to Toledo and rework the acceptance speech and . . ."

Paul grinned as they disappeared from view. *So the great Dr. Igor Amizov has problems just like us mortals.* Then Paul really grinned. Amizov was going to read his novel!

Three months later, Paul was no longer grinning.

He had heard not a word from the good doctor about his novel. His polite letters of inquiry and threatening telegrams had gone unanswered. Amizov's literary agent had thrown Paul out of his office; and when Paul identified himself on the telephone, the girl who worked for Amizov's answering service claimed she couldn't speak English.

Now Paul found himself staring at the massive stone wall that surrounded the doctor's country estate. He had just been informed by the intercom box at the barred gate that Dr. Amizov was out. In fact, it said, Dr. Amizov had gone on an extended world tour and was not expected back for several months, maybe even years, and had not left a forwarding address. But Paul had recognized the voice on the intercom. It was Amizov's.

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Paul studied the wall carefully. It was over fifteen feet high and topped with vicious-looking iron spikes. Signs bearing such antisocial sentiments as "Beware of Wild Stobor!" and "Trespassers Will Be Eaten!" and even "Earth Is Room Enough—Keep Out!" were prominently displayed on its face. Paul guessed that the wire running along the top of the wall was probably electrified. Apparently Dr. Amizov didn't like people dropping in without an invitation. That wasn't surprising to Paul, especially if Amizov had a habit of stealing other people's manuscripts.

Paul started to walk along the wall, looking for a way inside. Three hundred yards from the front gate he found it. A tall tree with branches that reached over the top. Minutes later Paul dropped into Amizov's garden, deliberately landing on some blue forget-me-nots.

He recognized the gnome sunbathing by the pool immediately.

"So, Dr. Amizov," Paul lisped menacingly, coming on like Humphrey Bogart confronting Sidney Greenstreet. "We meet again . . ."

Amizov sat up in his lounge chair and frowned at Paul. "Who the hell are you?" he demanded.

"That won't work, Amizov. Where's my manuscript?"

"Manuscript?" blinked the basking biochemist. "What manuscript?"

"So that's your game, eh?" Paul accused. "You steal other writers' material and pass it off as your own . . . I should have known it was impossible for any one man to produce so many books!"

"I don't know what you're talking about," insisted Amizov. "I don't have your precious manuscript!"

"One last time. Are you going to give me back my book or not?"

"Look here, you can't just sneak in here and make wild accu—" Amizov stopped in midsentence as Paul picked up a croquet mallet that was lying on the patio. "What are you going to do with that?" the manifold mentor asked suspiciously.

Paul idly swung the mallet, checking its balance, and said, "If I can't get my novel back from you at least I'll have the satisfaction of

The Analytical Laboratory/October 1973

PLACE	TITLE	AUTHOR	POINTS
1	The Far Call (Conc.)	*Gordon R. Dickson*	2.05
2.	Of Mist, and Grass, and Sand	*Vonda N. McIntyre*	3.09
3.	Whalekiller Grey	*William E. Cochrane*	3.48
4.	An Earnest of Intent	*Alfred D'Attore*	3.80
5.	The Hand Is Quicker	*Kevin O'Donnell, Jr.*	4.46
6.	Antalogia	*Walt and Leigh Richmond*	5.10
7.	Notes from Magdalen More	*L*z*r*s L*ng*	5.54

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rewriting the first few chapters on your skull . . ."

"You're crazy!" screamed Amizov as he dived beneath a nearby picnic table.

"What's going on out here?" a familiar voice called angrily from the house. "I can't get any work done with all this racket outside my window."

Paul whirled to face Dr. Igor Amizov as he stepped out on the patio. Then he looked back at Dr. Igor Amizov cowering under the picnic table. Then back at the new Amizov. The new Amizov froze when he saw Paul.

"An intruder!" the second Amizov squeaked. He turned to the Amizov emerging from under the picnic table. "Why didn't you warn me?"

"I'm sorry," apologized his lookalike. "I panicked."

"Twins? You're *twins!*" Paul cried. "So that's how you manage to do it all!"

"Not exactly twins," said the third Dr. Amizov as he came out of the house to join them.

Paul let the croquet mallet slip out of his hand.

"Triplets?" he ventured.

It was then that he noticed that each Amizov was wearing a button with a number on it. The sunbathing Amizov was wearing number "2," the two others had numbers "3" and "5."

"Do those numbers mean what I think they mean?" Paul asked hoarsely.

"Looks like the pebble is out of the sky," murmured number 5.

Paul could feel the plot beginning to thicken. Dazed, he sank to the lounge chair. "There are *five* of you?"

"Six, actually," said Amizov number 2.

"Quiet!" hissed number 3. "He knows too much already!"

"If he knows so much, what difference does it make?" asked Amizov number 5.

"I just don't think we should start telling any secrets until we know something about our guest here," said number 3. "Just who are you and what are you after?"

Paul introduced himself and briefly described his literary aspirations, his meeting with Amizov—with one of the Amizovs—and the agreement to read Paul's novel.

"That was number 6 you saw," explained Amizov number 5. "He does most of the lecture work. Unfortunately, he has the worst memory of the group. He probably forgot about your book, didn't mention it to any of us, and left it lying around the house somewhere."

"What do you mean by 'the group'?" asked Paul. "Which one of you is the real Dr. Amizov?"

"We are all the real Dr. Amizov," said number 5. "Although you'd probably get some argument from number 1. He likes to think

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the rest of us are copies made in his image."

"Copies?"

"It's not easy to explain. You don't happen to be a biochemist, do you?"

"No, I'm afraid not."

"Do you by any chance know what a clone is?"

"Sure," said Paul. "It's a funny guy at the circus in baggy pants and a red nose."

Amizov number 3 groaned and looked disgusted.

"That's a *clown*," continued number 5 patiently. "A clone is the product of reproduction without fertilization—reproduction without sex."

"I don't understand," said Paul. "Why would anyone want to do that? And how?"

"That's a bit complicated. Let's just say that Amizov number 1 stumbled onto a way to take a single cell from his body and make it grow into an exact duplicate of himself, a copy that was identical both physically and mentally to Amizov at the time the donor cell was removed from his body."

"Identical? Both physically *and* mentally?"

Amizov number 5 nodded. "A twin with the same memories, intellect, and personality. We don't start developing our own individual uniqueness until after we are 'born'."

"Astounding!" said Paul, astounded.

"Dr. Amizov duplicated himself five times. He is our parent, our brother, and ourselves."

"But why have you, I mean he, I mean you—all kept it a secret? It's one of the greatest scientific discoveries in history!"

"Do you realize what would happen if everyone could make copies of themselves?" asked Amizov number 3. "The world is on the brink of an overpopulation catastrophe as it is. Do you want us to push it over the edge?"

"And what if some power-hungry crackpot started reproducing an army of himselves in his basement?" warned number 2. "It would be too late before anyone found out."

"And the metaphysical implications are staggering," added Amizov number 5.

"I guess you're right," said Paul. "It's better that no one knows."

"Unfortunately, someone does know," said number 3. "The question is, what are we going to do about you?"

Paul smiled weakly at the three Amizovs and shrugged.

"If we had a dungeon we could keep him locked up like the Prisoner of Zenda," suggested number 2.

"But we don't have a dungeon," said number 3.

"What if he promised not to tell," said number 5. "We could just let him go if he promised not to tell."

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"A promise is no guarantee," said number 3. "The risk is too great."

"Then what are we going to do?" asked number 2. "We can't just dispose of him . . . can we?"

Amizov number 3 hesitated far too long for Paul's comfort, then said: "No, we can't just dispose of him. We Amizovs are no murderers."

Paul started breathing again.

"I know!" said number 5 suddenly. "We'll fix it so he'll have as much to lose if the secret gets out as we do!"

"And how are we going to do that?" asked number 3.

"Yes, how?" asked Paul.

"Look, my boy," Amizov number 5 said to Paul. "You said you wanted to be a writer like Dr. Amizov. Do you really mean that?"

"I sure do," said Paul. "It's been my lifelong dream."

"The secret to the Amizov success is that six heads are better, and more prolific, than one. What would you say if we trained you, helped you with your writing career, and cloned some more of you so you could really produce? You'd follow in our footsteps, become heir to the Amizov empire! What do you say to that?"

"Really? You really mean that?" bubbled Paul. "It would be terrific!"

"I don't know . . ." said number 3. "Shouldn't we wait and see how the rest of us feel about this?"

"What choice have we got?" asked number 5. "Especially if Paul's willing to cooperate."

"You bet I'm willing," said Paul. "I'd be nuts to turn down a chance like this. I could become one of the great authors of all time if there were a few more of me!"

"That settles it then," said number 5, shaking Paul's hand. "You're one of us . . . er . . . I mean, you're one of yourselves."

"I don't know," said Amizov number 3. "I'm not sure this is the right thing to do . . . Remember what happened the last time someone found out . . ."

"Someone else knows your secret?" asked Paul.

"There *was* one other person," admitted number 5, uneasily. "He found out by accident, too, only . . . only in his case there were some, uh, complications . . ."

His voice trailed off as the sound of a heated argument rose from around the corner of the house and the six agents of Amizov, the six Mr. Fagins, strolled into view, each looking for his percentage. ■

Editor's Note: Dr. Isaac Asimov wishes it mentioned (apropos of nothing, since it is clear there is no resemblance in the story to any person, living or dead) that he himself is of average height, does not fly, lives in an ordinary apartment, has no agent, and is only one person.

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It doesn't matter if a weapon is deliberately crafted for murder or a naturally-occurring phenomenon. What matters is its effect.

LARRY NIVEN

One day Mars will be gone.

Andrew Lear says that it will start with violent quakes, and end hours or days later, very suddenly. He ought to know. It's all his fault.

Lear also says that it won't happen for from years to centuries. So we stay, Lear and the rest of us. We study the alien base for what it can tell us, while the center of the world we stand on is slowly eaten away. It's enough to give a man nightmares.

It was Lear who found the alien base.

We had reached Mars: fourteen of us, in the cramped bulbous life-support system of the *Percival Lowell.* We were circling in orbit, taking our time, correcting our maps and looking for anything that thirty years of Mariner probes might have missed.

We were mapping mascons, among other things. Those mass concentrations under the lunar maria were almost certainly left by good-sized asteroids, mountains of rock falling silently out of the sky until they struck with the energies of thousands of fusion bombs. Mars has been cruising through the asteroid belt for four billion years. Mars would show bigger and better mascons. They would affect our orbits.

So Andrew Lear was hard at work, watching pens twitch on graph paper as we circled Mars. A bit of machinery fell alongside the *Percival Lowell,* rotating. Within its thin shell was a weighted double lever system, deceptively simple: a Forward Mass Detector. The pens mapped its twitchings.

Over Sirbonis Palus they began mapping strange curves.

Another man might have cursed and tried to fix it. Andrew Lear thought it out, then sent the signal that would stop the free-falling widget from rotating.

It had to be rotating to map a stationary mass.

But now it was mapping simple sine waves.

Lear went running to Captain Childrey.

Running? It was more like tra-

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peze artistry. Lear pulled himself along by handholds, kicked off from walls, braked with a hard push of hands or feet. Moving in free fall is hard work when you're in a hurry, and Lear was a forty-year-old astrophysicist, not an athlete. He was blowing hard when he reached the control bubble.

Childrey—who *was* an athlete—waited with a patient, slightly contemptuous smile while Lear caught his breath.

He already thought Lear was crazy. Lear's words only confirmed it. "Gravity for sending signals? Dr. Lear, will you please quit bothering me with your weird ideas. I'm busy. We all are."

This was not entirely unfair. Some of Lear's enthusiasms were peculiar. Gravity generators. Black holes. He thought we should be searching for Dyson spheres: stars completely enclosed by an artificial shell. He believed that mass and inertia were two separate things: that it should be possible to suck the inertia out of a spacecraft, say, so that it could accelerate to near lightspeed in a few minutes. He was a wide-eyed dreamer, and when he was flustered he tended to wander from the point.

"You don't understand," he told Childrey. "Gravity radiation is harder to block than electromagnetic waves. Patterned gravity waves would be easy to detect. The advanced civilizations in the galaxy may all be communicating by gravity. Some of them may even be modulating pulsars—rotating neutron stars. That's where Project Ozma went wrong: they were only looking for signals in the electromagnetic spectrum."

Childrey laughed. "Sure. Your little friends are using neutron stars to send you messages. What's that got to do with us?"

"Well, look!" Lear held up the strip of flimsy, nearly weightless paper he'd torn from the machine. "I got this over Sirbonis Palus. I think we ought to land there."

"We're landing in Mare Cimmerium, as you perfectly well know. The lander is already deployed and ready to board. Dr. Lear, we've spent four days mapping this area. It's flat. It's in a green-brown area. When spring comes next month, we'll find out whether there's life there! And everybody wants it that way except you!"

Lear was still holding the graph paper before him like a shield. "Please. Take one more circuit over Sirbonis Palus."

Childrey opted for the extra orbit. Maybe the sine waves convinced him. Maybe not. He would have liked inconveniencing the rest of us in Lear's name, to show him for a fool.

But the next pass showed a tiny circular feature in Sirbonis Palus. And Lear's mass indicator was making sine waves again.

The aliens had gone. During our

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first few months we always expected them back any minute. The machinery in the base was running smoothly and perfectly, as if the owners had only just stepped out.

The base was an inverted pie plate two stories high, and windowless. The air inside was breathable, like Earth's air three miles up, but with a bit more oxygen. Mars' air is far thinner, and poisonous. Clearly they were not of Mars.

The walls were thick and deeply eroded. They leaned inward against the internal pressure. The roof was somewhat thinner, just heavy enough for the pressure to support it. Both walls and roof were of fused Martian dust.

The heating system still worked—and it was also the lighting system: grids in the ceiling glowing brick-red. The base was always ten degrees too warm. We didn't find the off switches for almost a week: they were behind locked panels. The air system blew gusty winds until we fiddled with it.

We could guess a lot about them from what they'd left behind. They must have come from a world smaller than Earth, circling a red dwarf star in close orbit. To be close enough to be warm enough, the planet would have to be locked in by tides, turning one face always to its star. The aliens must have evolved on the lighted side, in a permanent red day, with winds constantly howling over the border from the night side.

And they had no sense of privacy. The only doorways that had doors in them were air locks. The second floor was a hexagonal metal gridwork. It would not block you off from your friends on the floor below. The bunk room was an impressive expanse of mercury-filled water bed, wall to wall. The rooms were too small and cluttered, the furniture and machinery too close to the doorways, so that at first we were constantly bumping elbows and knees. The ceilings were an inch short of six feet high on both floors, so that we tended to walk stooped even if we were short enough to stand upright. Habit. But Lear was just tall enough to knock his head if he stood up fast, anywhere in the base.

We thought they must have been smaller than human. But their padded benches seemed human-designed in size and shape. Maybe it was their minds that were different: they didn't need psychic elbow room.

The ship had been bad enough. Now this. Within the base was instant claustrophobia. It put all of our tempers on hair triggers.

Two of us couldn't take it.

Lear and Childrey did not belong on the same planet.

With Childrey, neatness was a compulsion. He had enough for all of us. During those long months aboard *Percival Lowell*, it was Childrey who led us in calisthenics.

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He flatly would not let anyone skip an exercise period. We eventually gave up trying.

Well and good. The exercise kept us alive. We weren't getting the healthy daily exercise anyone gets walking around the living room in a one-gravity field.

But after a month on Mars, Childrey was the only man who still appeared fully dressed in the heat of the alien base. Some of us took it as a reproof, and maybe it was, because Lear had been the first to doff his shirt for keeps. In the mess Childrey would inspect his silverware for water spots, then line it up perfectly parallel.

On Earth, Andrew Lear's habits would have been no more than a character trait. In a hurry, he might choose mismatched socks. He might put off using the dishwasher for a day or two if he were involved in something interesting. He would prefer a house that looked "lived in." God help the maid who tried to clean up his study. He'd never be able to find anything afterward.

He was a brilliant but one-sided man. Backpacking or skin diving might have changed his habits—in such pursuits you learn not to forget any least trivial thing—but they would never have tempted him. An expedition to Mars was something he simply could not turn down. A pity, because neatness is worth your life in space.

You don't leave your fly open in a pressure suit.

A month after the landing, Childrey caught Lear doing just that.

The "fly" on a pressure suit is a soft rubber tube over your male member. It leads to a bladder, and there's a spring clamp on it. You open the clamp to use it. Then you close the clamp and open an outside spigot to evacuate the bladder into vacuum.

Similar designs for women involve a catheter, which is hideously uncomfortable. I presume the designers will keep trying. It seems wrong to bar half the human race from our ultimate destiny.

Lear was addicted to long walks. He loved the Martian desert scene: the hard violet sky and the soft blur of whirling orange dust, the sharp close horizon, the endless emptiness. More: he needed the room. He was spending all his working time on the alien communicator, with the ceiling too close over his head and everything else too close to his bony elbows.

He was coming back from a walk, and he met Childrey coming out. Childrey noticed that the waste spigot on Lear's suit was open, the spring broken. Lear had been out for hours. If he'd had to go, he might have bled to death through flesh ruptured by vacuum.

We never learned all that Childrey said to him out there. But Lear came in very red about the ears, muttering under his breath. He wouldn't talk to anyone.

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The NASA psychologists should not have put them both on that small a planet. Hindsight is wonderful, right? But Lear and Childrey were each the best choice for competence coupled to the kind of health they would need to survive the trip. There were astrophysicists as competent and as famous as Lear, but they were decades older. And Childrey had a thousand spaceflight hours to his credit. He had been one of the last men on the Moon.

Individually, each of us was the best possible man. It was a damn shame.

The aliens had left the communicator going, like everything else in the base. It must have been hellishly massive, to judge by the thick support pillars slanting outward beneath it. It was a bulky tank of a thing, big enough that the roof had to bulge slightly to give it room. That gave Lear about a square meter of the only head room in the base.

Even Lear had no idea why they'd put it on the second floor. It would send through the first floor, or through the bulk of a planet. Lear learned that by trying it, once he knew enough. He beamed a dot-dash message through Mars itself to the Forward Mass Detector aboard *Lowell.*

Lear had set up a Mass Detector next to the communicator, on an extremely complex platform designed to protect it from vibration. The Detector produced waves so sharply pointed that some of us thought we could *feel* the gravity radiation coming from the communicator.

Lear was in love with the thing.

He skipped meals. When he ate he ate like a starved wolf. "There's a heavy point-mass in there," he told us, talking around a mouthful of food, two months after the landing. "The machine uses electromagnetic fields to vibrate it at high speed. Look—" He picked up a toothpaste tube of tuna spread and held it in front of him. He vibrated it rapidly. Heads turned to watch him around the zigzagged communal table in the alien mess. "I'm making gravity waves now. But they're too mushy because the tube's too big, and their amplitude is virtually zero. There's something very dense and massive in that machine, and it takes a hell of a lot of field strength to keep it there."

"What is it?" someone asked. "Neutronium? Like at the heart of a neutron star?"

Lear shook his head and took another mouthful. "That size, neutronium wouldn't be stable. I think it's a quantum black hole. I don't know how to measure its mass yet."

I said, "A *quantum* black hole?"

Lear nodded happily. "Luck for me. You know, I was against the Mars expedition. We could get a lot more for our money by explor-

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ing the asteroids. Among other things, we might have found if there are really quantum black holes out there. But this one's already captured!" He stood up, being careful of his head. He turned in his tray and went back to work.

I remember we stared at each other along the zigzag mess table. Then we drew lots . . . and I lost.

The day Lear left his waste spigot open, Childrey had put a restriction on him. Lear was not to leave the base without an escort.

Lear had treasured the aloneness of those walks. But it was worse than that. Childrey had given him a list of possible escorts: half a dozen men Childrey could trust to see to it that Lear did nothing dangerous to himself or others. Inevitably they were the men most thoroughly trained in space survival routines, most addicted to Childrey's own compulsive neatness, least likely to sympathize with Lear's way of living. Lear was as likely to ask Childrey himself to go walking with him.

He almost never went out anymore. I knew exactly where to find him.

I stood beneath him, looking up through the gridwork floor.

He'd almost finished dismantling the protective panels around the gravity wave communicator. What showed inside looked like parts of a computer in one spot, electromagnetic coils in most places, and a square array of pushbuttons that might have been the aliens' idea of a typewriter. Lear was using a magnetic induction sensor to try to trace wiring without actually tearing off the insulation.

I called, "How you making out?"

"No good," he said. "The insulation seems to be one hundred percent perfect. Now I'm afraid to open it up. No telling how much power is running through there, if it needs shielding that good." He smiled down at me. "Let me show you something."

"What?"

He flipped a toggle above a dull gray circular plate. "This thing is a microphone. It took me a while to find it. I am Andrew Lear, speaking to anyone who may be listening." He switched it off, then ripped paper from the Mass Indicator and showed me squiggles interrupting smooth sine waves. "There. The sound of my voice in gravity radiation. It won't disappear until it's reached the edges of the universe."

"Lear, you mentioned quantum black holes back there. What's a quantum black hole?"

"Um. You know what a black hole is."

"I ought to." Lear had educated us on the subject, at length, during the months aboard *Lowell.*

When a not-too-massive star has used up its nuclear fuel, it collapses into a white dwarf. A heavier star—

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say, 1.44 times the mass of the sun and larger—can burn out its fuel, then collapse into itself until it is ten kilometers across and composed solely of neutrons packed edge to edge: the densest matter in this universe.

But a big star goes further than that. When a really massive star runs its course . . . when the gas and radiation pressures within are no longer strong enough to hold the outer layers against the star's own ferocious gravity . . . then it can fall into itself entirely, until gravity is stronger than any other force, until it is compressed past the Swarzschild radius and effectively leaves the universe. What happens to it then is problematical. The Swarzschild radius is the boundary beyond which nothing can climb out of the gravity well, not even light.

The star is gone then, but the mass remains: a lightless hole in space, perhaps a hole into another universe.

"A collapsing star can leave a black hole," said Lear. "There may be bigger black holes, whole galaxies that have fallen into themselves. But there's no other way a black hole can form. *now*."

"So?"

"There was a time when black holes of all sizes could form. That was during the Big Bang, the explosion that started the expanding universe. The forces in that blast could have compressed little local vortices of matter past the Swarzschild radius. What that left behind—the smallest ones, anyway—we call quantum black holes."

I heard a distinctive laugh behind me as Captain Childrey walked into view. The bulk of the communicator would have hidden him from Lear, and I hadn't heard him come up. He called, "Just how big a thing are you talking about? Could I pick one up and throw it at you?"

"You'd disappear into one that size," Lear said seriously. "A black hole the mass of the Earth would only be a centimeter across. No, I'm talking about things from 10^{-5} grams on up. There could be one at the center of the Sun—"

"Eek!"

Lear was trying. He didn't like being kidded, but he didn't know how to stop it. Keeping it serious wasn't the way, but he didn't know that either. "Say, 10^{17} grams in mass and 10^{-11} centimeters across. It would be swallowing a few atoms a day."

"Well, at least you know where to find it," said Childrey. "Now all you have to do is go after it."

Lear nodded, still serious. "There could be quantum black holes in asteroids. A small asteroid could capture a quantum black hole easily enough, especially if it was charged; a black hole can hold a charge, you know—"

"Ri-ight."

"All we'd have to do is check

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out a small asteroid with the Mass Detector. If it masses more than it should, we push it aside and see if it leaves a black hole behind."

"You'd need little teeny eyes to see something that small. Anyway, what would you do with it?"

"You put a charge on it, if it hasn't got one already, and then you manipulate it with electromagnetic fields. You can vibrate it to make gravity radiation. I think I've got one in here," he said, patting the alien communicator.

"Ri-ight," said Childrey, and he went away laughing.

Within a week the whole base was referring to Lear as "the Hole Man," the man with the black hole between his ears.

It hadn't sounded funny when Lear was telling me about it. The rich variety of the universe . . . but when Childrey talked about the black hole in Lear's Anything Box, it sounded hilarious.

Please note: Childrey did not misunderstand anything Lear had said. Childrey wasn't stupid. He merely thought Lear was crazy. He could not have gotten away with making fun of Lear, not among educated men, without knowing exactly what he was doing.

Meanwhile the work went on.

There were pools of Marsdust, fascinating stuff, fine enough to behave like viscous oil, and knee deep. Wading through it wasn't dangerous, but it was very hard work, and we avoided it. One day Brace waded out into the nearest of the pools and started feeling around under the dust. Hunch, he said. He came up with some eroded plastic-like containers. The aliens had used the pool as a garbage dump.

We were having little luck with chemical analysis of the base materials. They were virtually indestructible. We learned more about the chemistry of the alien visitors themselves. They had left traces of themselves on the benches and on the communal waterbed. The traces had most of the chemical components of protoplasm, but Arsvey found no sign of DNA. Not surprising, he said. There must be other giant organic molecules suitable for genetic coding.

The aliens had left volumes of notes behind. The script was a mystery, of course, but we studied the photographs and diagrams. A lot of them were notes on anthropology!

The aliens had been studying Earth during the first Ice Age.

None of us were anthropologists, and that was a damn shame. We never learned if we'd found anything new. All we could do was photograph the stuff and beam it up to *Lowell.* One thing was sure: the aliens had left very long ago, and they had left the lighting and air systems running and the communicator sending a carrier wave.

For us? Who else?

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The alternative was that the base had been switched off for some six hundred thousand years, then come back on when something detected *Lowell* approaching Mars. Lear didn't believe it. "If the power had been off in the communicator," he said, "the mass wouldn't be in there any more. The fields have to be going to hold it in place. It's smaller than an atom; it'd fall through anything solid."

So the base power system had been running for all that time. What the hell could it be? And where? We traced some cables and found that it was under the base, under several yards of Marsdust fused to lava. We didn't try to dig through that.

The source was probably geophysical: a hole deep into the core of the planet. The aliens might have wanted to dig such a hole to take core samples. Afterward they would have set up a generator to use the temperature difference between the core and the surface.

Meanwhile, Lear spent some time tracing down the power sources in the communicator. He found a way to shut off the carrier wave. Now the mass—if there was a mass—was at rest in there. It was strange to see the Forward Mass Detector pouring out straight lines instead of drastically peaked sine waves.

We were ill-equipped to take advantage of these riches. We had been fitted out to explore Mars, not a bit of civilization from another star. Lear was the exception. He was in his element, with but one thing to mar his happiness.

I don't know what the final argument was about. I was engaged on another project.

The Mars lander still had fuel in it. NASA had given us plenty of fuel to hover while we looked for a landing spot. After some heated discussion, we had agreed to take the vehicle up and hover it next to the nearby dust pool on low thrust.

It worked fine. The dust rose up in a great soft cloud and went away toward the horizon, leaving the pond bottom covered with other-worldly junk. And more! Arsvey started screaming at Brace to back off. Fortunately Brace kept his head. He tilted us over to one side and took us away on a gentle curve. The backblast never touched the skeletons.

We worked out there for hours, being very finicky indeed. Here was another skill none of us would own to, but we'd read about how careful an archaeologist has to be, and we did our best. Traces of water had had time to turn some of the dust to natural cement, so that some of the skeletons were fixed to the rock. But we got a couple free. We put them on stretchers and brought them back. One crumbled the instant the air came hissing into the lock. We left the other outside.

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The aliens had not had the habit of taking baths. We'd set up a bathtub with very tall sides, in a room the aliens had reserved for some incomprehensible ritual. I had stripped off my pressure suit and was heading for the bathtub, very tired, hoping that nobody would be in it.

I heard the voices before I saw them.

Lear was shouting.

Childrey wasn't, but his voice was a carrying one. It carried mockery. He was standing between the supporting pillars. His hands were on his hips, his teeth gleamed white, his head was thrown back to look up at Lear.

He finished talking. For a time neither of them moved. Then Lear made a sound of disgust. He turned away and pushed one of the buttons on what might have been an alien typewriter keyboard.

Childrey looked startled. He slapped at his right thigh and brought the hand away bloody. He stared at it, then looked up at Lear. He started to ask a question.

He crumpled slowly in the low gravity. I got to him before he hit the ground. I cut his pants open and tied a handkerchief over the blood spot. It was a small puncture, but the flesh was puckered above it on a line with his groin.

Childrey tried to speak. His eyes were wide. He coughed, and there was blood in his mouth.

I guess I froze. How could I help if I couldn't tell what had happened? I saw a blood spot on his right shoulder, and I tore the shirt open and found another tiny puncture wound.

The doctor arrived.

It took Childrey an hour to die, but the doctor had given up much earlier. Between the wound in his shoulder and the wound in his thigh, Childrey's flesh had been ruptured in a narrow line that ran through one lung and his stomach and part of his intestinal tract. The autopsy showed a tiny, very neat hole drilled through the hipbones.

We looked for, and found, a hole in the floor beneath the communicator. It was the size of a pencil lead, and packed with dust.

"I made a mistake," Lear told the rest of us at the inquest. "I should never have touched that particular button. It must have switched off the fields that held the mass in place. It just dropped. Captain Childrey was underneath."

And it had gone straight through him, eating the mass of him as it went.

"No, not quite," said Lear. "I'd guess it massed about 10^{14} grams. That only makes it 10^{-6} Angstrom across, much smaller than an atom. It wouldn't have absorbed much. The damage was done to Childrey by tidal effects as it passed through him. You saw how it pulverized the material of the floor."

Not surprisingly, the subject of murder did come up.

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Lear shrugged it off. "Murder with what? Childrey didn't believe there was a black hole in there at all. Neither did many of you." He smiled suddenly. "Can you imagine what the trial would be like? Imagine the prosecuting attorney trying to tell a jury what he thinks happened. First he's got to tell them what a black hole is. Then a quantum black hole. Then he's got to explain why he doesn't have the murder weapon, and where he left it, freely falling through Mars! And if he gets that far without being laughed out of court, he's still got to explain how a thing smaller than an atom could hurt anyone!"

But didn't Dr. Lear know the thing was dangerous? Could he not have guessed its enormous mass from the way it behaved?

Lear spread his hands. "Gentlemen, we're dealing with more variables than just mass. Field strength, for instance. I might have guessed its mass from the force it took to keep it there, but did any of us expect the aliens to calibrate their dials in the metric system?"

Surely there must have been safeties to keep the fields from being shut off accidentally. Lear must have bypassed them.

"Yes, I probably did, accidentally. I did quite a lot of fiddling to find out how things worked."

It got dropped there. Obviously there would be no trial. No ordinary judge or jury could be expected to understand what the attorneys would be talking about. A couple of things never did get mentioned.

For instance: Childrey's last words. I might or might not have repeated them if I'd been asked to. They were: "All right, show me! Show it to me or admit it isn't there!"

As the court was breaking up I spoke to Lear with my voice lowered. "That was probably the most unique murder weapon in history."

He whispered, "If you said that in company I could sue for slander."

"Yeah? Really? Are *you* going to explain to a jury what you think I implied happened?"

"No, I'll let you get away with it this time."

"Hell, you didn't get away scot-free yourself. What are you going to study now? The only known black hole in the universe, and you let it drop through your fingers."

Lear frowned. "You're right. Partly right, anyway. But I knew as much about it as I was going to, the way I was going. Now . . . I stopped it vibrating in there, then took the mass of the entire setup with the Forward Mass Sensor. Now the black hole isn't in there anymore. I can get the mass of the black hole by taking the mass of the communicator alone."

"Oh."

"And I can cut the machine open, see what's inside. How they

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controlled it. Damn it, I wish I were six years old."

"What? Why?"

"Well . . . I don't have the times straightened out. The math is chancy. Either a few years from now, or a few centuries, there's going to be a black hole between Earth and Jupiter. It'll be big enough to study. I think about forty years."

When I realized what he was implying, I didn't know whether to laugh or scream.

"Lear, you can't think that something that small could absorb Mars!"

"Well, remember that it absorbs everything it comes near. A nucleus here, an electron there . . . and it's not just waiting for atoms to fall into it. Its gravity is ferocious, and it's falling back and forth through the center of the planet, sweeping up matter. The more it eats, the bigger it gets, with its volume going up as the cube of the mass. Sooner or later, yes, it'll absorb Mars. By then it'll be just less than a millimeter across. Big enough to see."

"Could it happen within thirteen months?"

"Before we leave? Hm-m-m." Lear's eyes took on a faraway look. "I don't think so. I'll have to work it out. The math is chancy . . ." ■

in times to come

One of the pleasant surprises of editing is that the writers so often prove the editor is wrong. When Stephen Nemeth and William Walling first sent in the outline for their novel, "Earth, Air, Fire and Water," I was immediately convinced of two things: first, it was a bold and imaginative idea for a smashing science-fiction novel; and second, that they'd never be able to carry it off, because it was *too* big, too ambitious.

It's a pleasure to admit how wrong I was. Nemeth and Walling have produced a larger-than-life adventure that combines immense technological feats with world-shaking political crises.

The central technological feature of the story is a gigantic engineering effort to build high-speed underground pneumatically-driven train systems that will link all the major population centers of the U.S. But this vast effort, far bigger than the Apollo project, is merely the cover for the *really* staggering plan that a small group of highly-placed people are pushing through.

The cover painting is by Jack Gaughan.

Also in February we will have several stories by new writers and, if space permits, stories by Joe Haldeman and Barry Malzberg. The science article will be "The Artist and the Computer," by David L. Heiserman. And we'll also have all the usual features.

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KELLY FREAS

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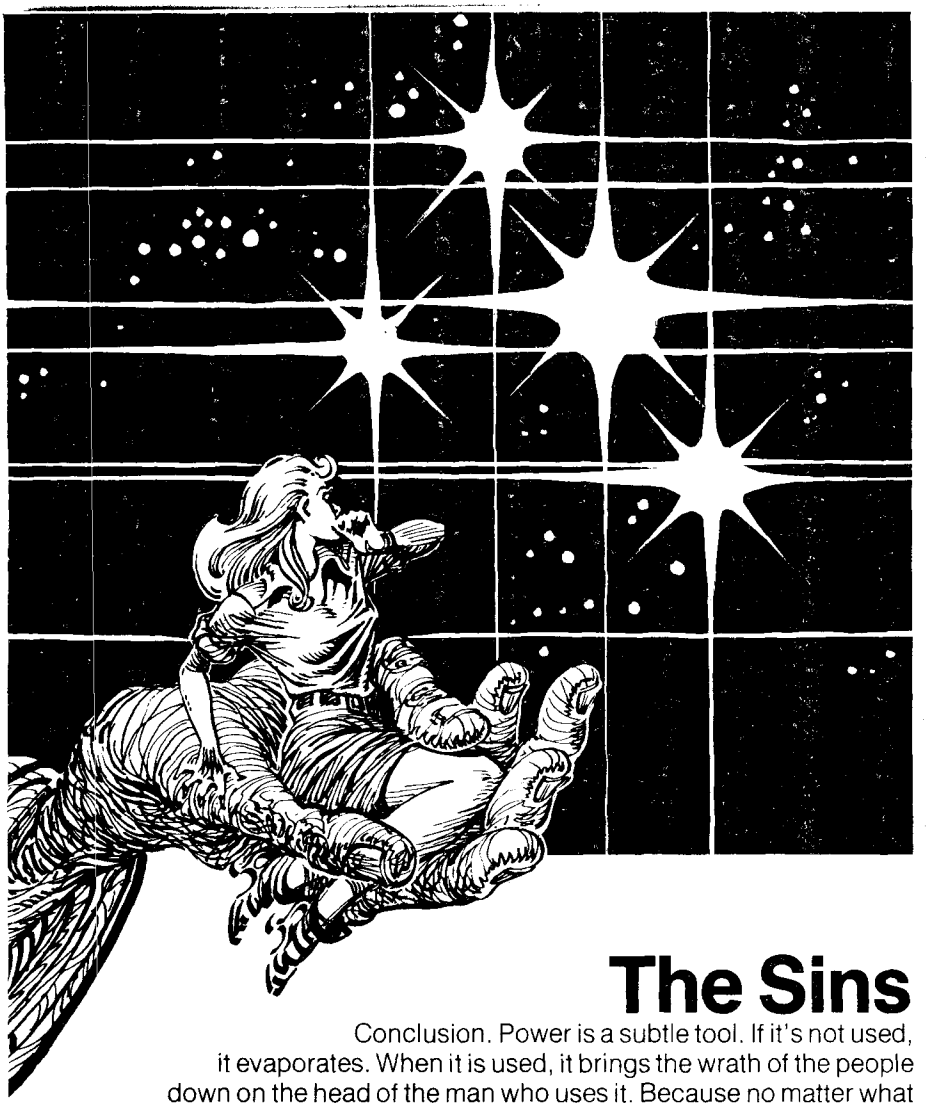

The Sins of the Fathers

Conclusion. Power is a subtle tool. If it's not used, it evaporates. When it is used, it brings the wrath of the people down on the head of the man who uses it. Because no matter what you do with power, those who don't have it are going to claim that you're misusing it.

STANLEY SCHMIDT

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SYNOPSIS

The accidental discovery of a faster-than-light drive by CHANDRUGUPTA RAO *and* CHANG PEI-FU *near the end of the Twentieth Century has opened the way to interstellar exploration at a time when development of the Solar System is only well begun. In the early Twenty-first Century, a few Rao-Chang ships are sent out to seek colony sites among nearby stars, and one, the* Archaeopteryx, *is sent a hundred and thirty light-years out on a pure-research mission.* DONALD LEWISTON, *the astronomer who persuaded the World Science Foundation to support the expedition, hopes to overtake light from the supernova S Andromedae and perform observations which were not possible when the light passed Earth in 1885. He is accompanied by* DIRK BOROWSKI, *pilot and captain, and* JONEL TRUABIAN, *a young man with both astrophysical and pilot's training who doubles as ship's mate and astronomer's assistant. Lewiston's observations are successful, but when the ship returns to Earth, two weeks overdue, he is insane and Borowski has been murdered.*

The ship is met at Kennedy Spaceport in Florida by HENRY CLARK, *Lieutenant Commissioner of Grants for the WSF, who was influential in getting the* Archaeopteryx *funded. Turabian tells him that Lewiston went berserk, possibly because of the psychological effects of super-c travel, and killed Borowski. He leaves the spaceport, saying he needs contact with Earth to reinforce his own sanity, and Clark summons* JOE SANCHEZ, *the Foundation's chief counselor.*

Sanchez is appalled that Clark let Turabian wander off the base, suggesting that Turabian's story may not be entirely true and that Clark may lack some of the qualifications for effective use of power. Meanwhile Turabian conducts some investigations of his own, and when he is called back to the spaceport he admits that he has not told the whole truth. The Archaeopteryx*'s mission took it closer to the center of the galaxy—and its instruments showed that the galactic core has suffered a large-scale explosion. The radiation will begin reaching Earth in twenty years or less, and Turabian's independent investigations have convinced him that it will make Earth's surface uninhabitable. But it need not mean extermination. It may be possible for some people to survive either by hiding underground or by fleeing, using Rao-Chang ships at unprecedented speeds to reach a neighboring galaxy such as M31 in Andromeda. Clark finds both solutions unsatisfying, and suggests that Turabian go off on his own for a few days while they all try to think of a better solution.*

Turabian goes to visit his fiancée, SANDY DUNBAR, *in the mountains of eastern Tennessee. He tells her what has happened, and is relieved that she is willing to flee to M31 with him if the opportunity arises. She*

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wonders whether there may be some significance in Lewiston's having had hallucinations about being followed in the period when he killed Borowski.

Henry Clark, though pessimistic, visits Chandragupta Rao to get his opinion on the feasibility of intergalactic escape such as Turabian suggested. Rao confirms his suspicion that it cannot help more than a very small number of people—and Rao himself has little interest in even that.

Clark leaves the interview deeply discouraged—and is informed by Sanchez that extraterrestrials have appeared near Earth, made radio contact, and are sending representatives to Kennedy Spaceport to talk to Clark. Clark, surprised and confused, awaits their arrival with Sanchez—and Rao, hastily and somewhat reluctantly summoned as a technical consultant.

The aliens, called "Kyyra," arrive in a small shuttle seemingly intended to be inconspicuous. There are three of them, all of imposing appearance to human eyes, led by a spokesman named BELDAN. *Beldan explains that they saw the* Archaeopteryx *in space and followed it home. The Kyyra formerly lived near the galactic core and are already fleeing the explosion, having converted their home planets to faster-than-light ships using the Rao-Chang principle. They offer to help the inhabitants of Earth escape in the same way—by bodily moving the Earth to M31. Clark is intrigued by the offer, but wonders what price they will ask in return. However, he decides it would be better not to ask at this time.*

That night, while trying to decide whether to notify United Nations head FRANZ GERBER *of the recent events, Clark is visited in his apartment by Rao. Rao is suspicious of the Kyyra offer, both because he wonders whether they can be trusted and because he suspects something sinister in their motives for the offer. Clark doesn't see the reason for the latter until Rao reminds him of the energy and time-dilation characteristics of the Rao-Chang drive. If Beldan's story is true, it seems inescapable that the Kyyra have been traveling very slightly above the speed of light. Such a speed seems to offer no advantages at all over traveling much faster—but it involves a huge amount of additional expense and trouble.*

So the obvious and very puzzling question is, Why are they doing it that way?

Kennedy Spaceport was closed in preparation for the arrival of the Kyyra, and several people in the area saw the shuttle come in despite its camouflage. These events lead newsmen to speculate that aliens have come to Earth, and UN head Gerber calls Clark to check the rumor. Clark verifies it; Gerber is less alarmed than skeptical—and indignant that he wasn't notified. He leaves Clark with the responsibility

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for gathering information on which to base a decision, but warns him that any final decision on whether to accept the Kyyra offer must be made by the UN.

The same evening, Jonel and Sandy come to the spaceport and tell Clark that some of Lewiston's hallucinations may have been real perceptions of the Kyyra. Clark asks Beldan about this at the next day's conference, at which Jonel and Sandy are present. Beldan verifies the suspicion, explaining that they used machine-aided psi techniques to learn about the Archaeopteryx *crewmen and their home world. Clark raises the question of their motives for offering help—and Beldan refuses to discuss it, dismissing it as irrelevant. The question of why they are traveling at such an unusual speed meets the same response. Clark, frustrated, turns to procedural details, and Beldan makes it clear that even with their help the flight to M31 will be arduous and will permanently and drastically alter the entire Earth.*

Sanchez and Rao are both dissatisfied with Clark's conduct of the meeting and insist that the questions of motive and travel speed must be answered. Rao, offended by a remark of Clark's during the conversation, severs himself from the Kyyra talks and exposes them publicly.

Sandy, badly shaken by Beldan's description of what escape will entail, suggests to Jonel that they get married right away. They do. Later she tells him that she thinks Beldan is also scared and she would like to try to get personally acquainted with the Kyyra. Clark is skeptical of the idea at first, but then approves it with the hope that Sandy can learn something of their motives.

Beldan accepts an invitation to the Turabians' apartment and brings a gift—a small sculpture representative of the lavish and skillful use of metals common among the Kyyra. In the informal surroundings, Beldan relaxes somewhat for the first time on Earth. He attempts to explain the discomfort he has felt so far, and phrases some of it in terms of "God." Sandy is interested in the allusion, but Beldan is reluctant to discuss it. "Our God is dying," he says. "We're killing Him."

As a result of Rao's publicity, the human-Kyrra talks are taken over by an enlarged committee appointed by Gerber and followed with intermittent interest by the public. Public opinion is divided and variable, but tends to show a definite majority against accepting the offer and a sizable minority in favor.

In mid-January a saboteur attempts to blow up the Kyyra shuttle. He is stopped, but escapes, and an investigation produces nothing conclusive. Gerber is appalled that such a thing could happen, and dissatisfied that so little has come out of several weeks of talks. Clark admits that he thinks the committee has enough information to make a decision, but more consensus of pub-

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lic opinion is needed. Gerber impatiently demands that he do whatever is necessary to reach a decision soon. Shortly after that, Beldan himself says a decision will have to be made very soon because the Kyyra ship will not stay here much longer.

Clark, under pressure but still hoping for a real consensus, makes a live public appearance to appeal for thought and cooperation. During his speech, he is shot at by two members of the audience and wounded by one of them. Rao turns the incident to his own advantage to whip up a public clamor demanding immediate clarification of the aliens' motives.

Clark, hospitalized, is visited by Jonel Turabian and Joe Sanchez. Sanchez tells him that one of his would-be assassins was a lone crackpot, but the other was apparently a member of a conspiracy wanting to block acceptance of the Kyyra offer. Nothing more specific is known, but the motive question has become urgent and central. Sanchez suggests that Sandy Turabian might be able to make Beldan see the importance of answering it, and Jonel agrees to try to persuade her to make a special effort to do so.

But when he tries to contact her, he finds that Sandy has disappeared without a trace—and so have the Kyyra and their shuttle.

Part 3

XV

There were no actual windows aboard the Kyyra shuttle, but there were viewscreens that delivered a view so realistic that Sandy could easily imagine that there was nothing between her and the starship looming ahead. She watched with rapt fascination as they approached, not even noticing the slight discomfort of the cramped quarters and the alien design of the chair in which she sat. The ship, growing steadily in the screen, absorbed her whole attention. It was a thing of phenomenal size—she could tell that much easily. Just how phenomenal, she couldn't tell because there were no familiar features for comparison. She had noticed the same effect with some of the structures at Kennedy Spaceport, but it was even more pronounced here, with this work of alien hands. Somewhere beneath its surface was a general suggestion of streamlined contours, but what actually met the eye was an intricate array of wildly jutting substructures, for their functions were needed and the ship never had to enter an atmosphere. All of it was metal, apparently, but not mirror-shiny. Instead, the sunlit side shone with a muted velvety luster, and here and there on the dark side panels and bubbles glowed softly with their own multicolored lights. As it grew to fill the screen and then beyond, Sandy saw finer and finer structural details that reminded her of the delicate craftsmanship of the sculpture Beldan had given her and Jonel.

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In just a few minutes she would be going inside.

For Sandy, this was a moment of triumph in more than one way. She had never been in space before, and she found it as exhilarating as Jonel had told her it was. And this particular trip was one she had been trying to talk Beldan into for weeks, first with subtle hints and later by asking directly. She still had no intention of spying, but she was very interested in seeing Beldan's home culture from inside. And as she got to know him, she felt more and more strongly—even though it was still just a hunch—that there was no malice in either his reasons for offering aid or his reasons for not talking about them. With an inside look, she might be able to prove that to herself—and possibly even find a way to convince her bickering fellow humans of it without betraying Beldan's trust.

He had put off her request so often—always politely and with apparently sincere regret—that she had almost given it up. Then this evening *he* had suddenly raised the question and said he had decided to take her to visit the ship if she still wanted to go. He had seemed oddly hurried, and had said confusing, disturbing things about this being their last chance because it appeared that they would soon be leaving Earth and going back to the fleeing Kyyra planet.

But Sandy had jumped at the chance. Within half an hour she and the three Kyyra were high above the Earth, looking down at the tiny spaceport where several guardsmen would now be searching an empty spot in their memories for an explanation of the shuttle's disappearance.

They docked. With a barely perceptible thump, the shuttle settled into an indentation in the side of the big ship. All sensation of motion ceased, and the faint hum of the engines dropped gradually out of hearing. The walls wavered slightly as, outside the passenger compartment, the craft reshaped itself for resting. "We're here," said Beldan, standing up. "They'll be letting us in now."

Sandy stood up, clutching her hastily packed overnight bag with a bit of nervousness. Up until now, she had felt none of that, but now that the moment was at hand little slivers of doubt flashed through her mind. What if the others weren't as easy to get along with as Beldan? What if there really was something sinister behind their actions that she had not even suspected? What if—

A circular door appeared and dilated silently, opening onto a short corridor warm with illumination resembling diffuse candlelight. Three other Kyyra stood at its end, looking out at them. All three wore the rippling robes of multicolored cloth Sandy was already familiar with. No two were alike—the variety in

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texture and pattern went beyond her wildest imaginings—but again she was dazzled by the free use of metals in the fabrics and ornaments.

Beldan put his big multijointed hand on her shoulder and urged her forward. "Go ahead," he said gently. "Nothing to be afraid of." She stepped into the corridor—and her doubts and hesitation evaporated instantly. Suddenly she was calm, poised, fully at ease. The effect was so striking that a part of her mind noted it intellectually, but the awareness did not ruffle her composure at all.

She walked confidently forward. The short corridor took them gently through the transition from the shuttle's artificial gravity to the ship's. By the time they reached the end and emerged into the room where the three strangers waited, the field was uniform and quite comfortable, just a shade weaker than Earth's.

The waiting trio seemed to be watching Sandy curiously but with averted vision, and they stepped away slightly as she drew close. Beldan said something to them in their own language, except that Sandy recognized her own name in the middle of it. All three members of the welcoming party answered simultaneously. At first Sandy was a little surprised that she couldn't read their facial expressions at all, since she had learned to read Beldan's pretty well. But she quickly realized that what had really happened was that Beldan had learned to use human expressions very well. When he talked to the other Kyyra, his face became as cryptic as theirs.

He turned to Sandy with a human smile. "I told them you are my friend and they said to tell you they are pleased and honored to meet you. These are Arxööl, Khalikh, and Zhalãũ."

Sandy nodded toward each in turn, carefully intoning each one's name as she did so. "Tell them I am pleased and honored to meet them also," she told Beldan.

He nodded, said a few more syllables to them, and turned back to her. "Zhalãũ will take your bag to your room, if you like."

She held it out, smiling. Zhalãũ reached out and took it quickly, then jerked it back as if afraid to remain too close to Sandy for too long. Sandy was a little startled at their apparent attitudes toward her, but did not take offense. She told Beldan, "Tell him I thank him."

Beldan sang a few more Kyyra syllables and Zhalãũ disappeared down a side corridor, followed closely by both companions plus the two who had chauffeured Beldan's shuttle. When they were alone, Beldan told Sandy, "Zhalãũ is a her."

"Oh!" Sandy said, startled and just slightly embarrassed. "I'm sorry. I didn't know."

"No matter," Beldan smiled. "We would not expect you to. The

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superficial appearances of our sexes are not very different, to either the eye or the ear. Not nearly so much as in your species. In any case, our language does not use gender. And even if it did, I would have translated with the appropriate word. There was no danger of offense." He gestured toward another corridor. "Why don't we go to one of the gathering halls? There we can sit and talk, and you can meet some of my friends. And if you have questions about anything you see, don't hesitate to ask."

They started off along the corridor. It curved and twisted like nothing Sandy had seen in human architecture. Evidently the Kyyra felt no obligation to build with rectangular forms, and as a result even something as utilitarian as a ship's corridors took on a surprising grace. Sandy saw no doors along the way, but occasionally one appeared long enough for someone to emerge into the corridor or disappear into a side room. Some of those they passed were wearing tight protective coveralls which made Sandy guess they were engaged in some sort of manual labor—but even their coveralls were of those same dazzling fabrics.

"I'm fascinated by the things you people wear," Sandy remarked. "All that metal! And not just in the clothes, either. Your music-pipe, the furniture in the shuttle . . ." She looked around. "Even the floor and walls of this corridor. Do you people make *everything* out of metal?"

Beldan nodded; Sandy thought his eyes almost made that peculiar involuntary jerking motion, but she wasn't sure. "Yes," he said. "As much as possible, which includes most things."

"Even on the planets?"

"Yes. We have found that for almost all purposes, we can make alloys which are superior to synthetics of the kinds you call plastics. Even when there is no functional advantage, we prefer the metals aesthetically."

Sandy whistled. "Your home planets must have been very rich. On Earth we could never use them so lavishly. So much metal would be fantastically expensive—if enough even exists, which I doubt."

"Our native supplies were not so much greater than yours," Beldan told her. "But when our ancestors were learning to harness stellar energies, they found that for some purposes it is convenient to artificially induce a supernova. You've studied astronomy, haven't you? So I suppose you'll see at once that that method of high-rate energy generation yields large quantities of heavy metals as a useful by-product. Quite enough for all the uses you see, as well as many others." He gestured ahead of them. "Here, we're coming to the hall."

Ahead of them the corridor curved upward, becoming vertical and then looping back overhead at

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the same time it twisted sideways. That was how it looked from here, anyway. As they got into the loop Sandy found that the field actually shifted so that it was always perpendicular to the floor and so felt almost normal, with just a tantalizing touch of cross-tugs on the upper parts of her body. Then it smoothed out again as they emerged into a relatively large room.

Actually, she realized at second glance, it wasn't extremely large. It held about thirty Kyyra, mostly seated at curved tables with mirror tops of various colored metals, but it held them without much room to spare. The illusion of size came partly from the number actually present, but more from the design and décor—especially the prominent use of huge mirrors of silver and gold and bronze on all the walls and ceiling.

Beldan took Sandy around and introduced her to several individuals. All of them responded much as those in the vestibule had, with what seemed to be a kind of awkward shyness followed by a rather hasty retreat. None of them tried to converse with her at any length, even though Beldan was available as an interpreter. At first that bothered her slightly, but she quickly decided that a certain timidity was to be expected and then dwelt no longer on it.

After they'd been around the room, Beldan led her to a small S-shaped table and they sat down. All around them was the sound of thirty Kyyra voices all talking at once, mingled with several music-pipes. Sandy listened intently, concentrating on the very distinctive flavor it gave the place.

Beldan remarked, "The people I introduced you to were delighted that you tried to say their names—and amazed that you said them so well."

Sandy smiled. "Did I?"

"Very well indeed. You know, of all the humans I have met, you are the only one who always remembers to be careful about the pitch." He smiled. "Jonel and Henry Clark usually try, but not as well as you do."

Sandy shrugged, studying the reflection of herself and her surroundings in the copper-colored tabletop. "I just assumed, from the way you talked when you were first introduced to me, that your language is tonal. I take it I was right."

"If by tonal you mean the meaning depends partly on pitch, yes."

"It's absolute pitch, too, isn't it? That is, not just whether a syllable is higher or lower than another syllable?"

"Yes."

Sandy nodded. "That's what I thought. That's why most people don't say your words right. Most people simply can't distinguish absolute pitches very well."

"Ah," Beldan exclaimed, "that

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explains a great deal. We had wondered why all the human languages we studied were so long-winded. If they *can't* distinguish many shades of intonation, I suppose they *have* to use a lot of multisyllable words. We don't, you know. With a large number of phonemes to begin with, plus thirteen possible pitches and two lengths for any syllable, our language consists almost entirely of monosyllables and has a bigger vocabulary than English."

" 'Beldan'?" Because the tone was an integral part of the word, Sandy had to rely on her face to carry the question mark.

He smiled. "Proper names are the only common exception." He looked thoughtful and said, "What you said before—I suppose that means most humans could not learn our language. Would you agree?"

"Yes. But you seem to have learned English both very easily and very well." She stopped and thought about that while Beldan turned to answer another Kyyra who had just stopped and spoken to him.

The other handed Beldan a gourd-shaped object and left. When Sandy saw what it was, she frowned, puzzled. "Why do you need a food converter here? You're back home now!"

"It's for you," said Beldan, handing it to her. "You're not. I had it prepared especially for you. Don't worry; it's right for your metabolism. Its adjustment is based on meals I've had at your apartment, and it'll work on everything we have here." As if on cue, the Kyyra who had brought him the converter returned with a tray of assorted solid lumps and tiny, engraved metal cups of colored liquids. None of it looked or smelled familiar, but the mingled odors were not unpleasant. "Try some," Beldan said. "Just take anything that looks interesting. I'll do likewise. Let me show you how to use that . . ." All she had to do was squirt a dose of the stuff in the converter into her throat; it was pre-mixed to take care of anything she might be served while aboard the ship. Then she started sampling things from the tray, gingerly at first and then with rapidly growing interest and enjoyment. All the tastes were strange, but there were several that she would find reasonably easy to learn to like.

"I was thinking about your learning English so easily," she said, leaning back and looking at Beldan while chewing on one of his tidbits, feeling good. "I think I've figured out, all at once, both why you learned it so easily and why you speak it with the kind of accent you do."

"Do I speak it with an odd accent?" He seemed taken aback.

"Oh, don't get me wrong," Sandy said hastily. "Your pronunciation is flawless—few humans learn to pro-

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nounce a foreign human language that well in a lifetime. I'm guessing that that's because of the large number of phonemes you mentioned in your own tongue. They include most of the ones in English?"

He nodded. "Yes. And every other human language we've looked at. What is the odd part of my speech?"

"The tones. We don't use the fine absolute pitches you do, but we use general patterns of rising and falling tones to shade the meaning of an entire sentence. You don't do that. Your voice jumps around and sounds almost like you're singing."

"Oh." He looked thoughtful. "I see. The tones in your speech seemed so arbitrary that I assumed they had no significance at all. I probably tend to simply use random successions of the Kyyra pitches. I'm sorry if I have offended anyone."

"Of course you haven't." Hoping to change the subject to something less touchy, but not too remote, she asked suddenly, "Do Kyyra sing?"

"What?"

"Do Kyyra sing? You've probably heard it on television. When people pronounce words with much more definite tone patterns than ordinary speech. You know . . . like this." She leaned closer so he could hear her and softly sang a snatch of an old Irish song:

" *'Sing, sing, for music was given*
To brighten the gay and kindle the loving;
Souls here, like planets in heaven,
By harmony's laws alone are kept moving . . .'

"Do you ever do that?"

"I think I understand," he said doubtfully. "Something like combining toneless words with the wordless tones of a music-pipe."

"Exactly."

"But of course since our words aren't toneless we can't do that without losing their meaning."

"That's what I thought."

"But," he added, his face brightening, "we have something more or less related that you can't have. Listen to those young people over there at the next table." Sandy listened as they burst into a short period of spasmodic sounds that she didn't recognize, but she was pretty sure it wasn't speech. "They're laughing," Beldan explained as the sounds subsided. "Now listen." One of them played something on his pipe—something faster and less flowing than most of what Sandy had heard Beldan play—and then they all broke into another round of the alien laughter.

"I cannot let you fully into the joke," said Beldan, "but I can describe roughly what they were doing. Perhaps the pipe-tune reminded you of our speech. What the piper did was to remove everything but the tones from a sentence and play only the tone-pattern. The tone-pattern suggests the complete

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sentence to a Kyyra—but the same tones could also be pronounced in other ways and mean other things. That particular tune immediately suggests at least four different sentences—and the relationship among them is humorous."

"A musical pun!" Sandy said immediately, laughing appreciatively at the idea. "No, we don't have that. But I can imagine some of the possibilities—" She noticed a group of very small Kyyra who had appeared across the room and broke off. "Beldan, are those children?"

"Yes."

She hesitated, excited by the thought of something somebody had said shortly after the Kyyra came to Earth. She wanted to ask, but wondered whether it was in good taste. That strange inner calm seemed to assure her that it was all right, but still she hesitated. "How old are they?" she ventured timidly.

"Perhaps fifteen of your years." He looked at her face, saw her inner struggle, and seemed to read her mind. "You are curious about our life cycle? Well, I can tell you that we typically live to about two hundred of your years, and consider a generation something like seventy or eighty. If you would like to know more details—" He looked at her again and stopped abruptly. "Forgive me," he said. "I'd forgotten how late it is. You must be very tired. Would you like me to show you to your room?"

She wasn't sure whether it was intended as a hint, but she chose to take it as one. And now that he reminded her, she suddenly realized that she herself had forgotten how late it was and how tired she was. The hubbub of alien voices seemed abruptly distant and dreamlike. "Thank you, Beldan," she said quietly. "I'd like that very much."

Her handbag was waiting for her in the middle of a long, concave bed in a room so full of metal ornament that it seemed hardly meant for sleeping. But presumably it would be dark when she slept, and she was very tired . . .

As Beldan closed the door and left her alone, she also felt twinges of loneliness and fear and guilt and doubt. Loneliness, because she was alone among aliens—the first human, she suddenly realized for the first time, ever to be alone among aliens, in an alien bed aboard their huge starship far out in space. Fear, because it was impossible to feel totally at ease among beings so powerful they could talk casually about causing supernovae as "convenient" sources of energy and precious metals. Guilt, because she hadn't really wanted to come without leaving Jonel a note—but Beldan had said this was a favor he would do only for her and he'd rather no one else knew about it. He said the Kyyra had a way he could notify Jonel with no possibility of anyone else getting the message instead; she only hoped he

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had remembered to leave it.

And she felt doubt as a result of all the others—doubt that the whole trip had really been a wise move.

But even as they arose and tried to grow, the loneliness and fear and guilt and doubt receded and vanished. It felt almost as if they were meeting active resistance—as if some soft invisible hand saw them rising and quietly but firmly patted them back down.

As if the ship were trying to soothe her.

She lay down, more puzzled than bothered by the thought. She didn't see a light switch, but as soon as she lay down the light began slowly fading and in two minutes it was completely dark. As distractions receded into memory and she continued to relax, she became more and more aware of the aura that she had first noticed as soon as they came aboard.

And suddenly she had an idea what it was. She sat up, startled, awed, eager to talk to somebody about it.

But the big, soft, invisible hand of the aura quickly smoothed those things out. Very gently, the soothing calm returned and eased her back onto the bed and into deep, blissful sleep.

XVI

Jonel spent a rough night. He found no clue as to Sandy's whereabouts, unless the near-simultaneous disappearance of the Kyyra and their shuttle was one. They wouldn't let him back in to see Clark until the next morning's visiting hours, despite his efforts to make them understand how urgently important it was. They wouldn't even put a phone call through. And when he finally did get in, at ten A.M., he found Clark sitting up in a chair and looking so much more chipper than yesterday that it was hard to believe such a protective attitude had been necessary.

"Sandy's gone," he told Clark curtly. "I don't know where. I tried to reach Beldan and found out he's gone too. So are the other two Kyyra and so is their shuttle."

Clark's eyebrows shot up and then returned. He looked surprised, but not as upset as Jonel might have expected. "Shuttle's gone, huh? Did anybody see it leave?"

"I talked to some guardsmen. Nobody will admit to it."

"That's very strange."

"Yes." Jonel paused briefly and said, "Sandy didn't leave a note. That's not like her. So I suspect foul play."

Clark nodded. "A reasonable suspicion. Let's see now. The shuttle is gone and so is Sandy. They both disappeared about the same time and Sandy was with Beldan, so you suspect a connection. All very reasonable. O.K.—where might the shuttle have gone? The obvious guess is that its owners took it and took Sandy with them

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for some reason which we don't know. Or possibly somebody else took it, along with Sandy and the Kyyra—somebody like the anti-Kyyra conspirators we already know exist." He gestured painfully at his shoulder. "In either case, the guards should remember and they don't. Which is very odd."

Jonel nodded impatiently. "That pretty well sums it up. So what are we going to do?"

Clark tried to shrug, momentarily forgetting his bad shoulder, and ended in a grimace instead. "If the Kyyra took the shuttle themselves, where would they go with it? For the moment, never mind how they did it without being noticed; we have that problem no matter who took it. Skipping past that, the Kyyra would almost certainly have gone to their ship. We know where their ship is; we've seen it. But lately we haven't been watching it as continuously or as closely as we maybe should have. So we're not likely to find anybody who knows whether the shuttle went there."

"Except on board," Jonel said pointedly.

"Yes. And we're not going to look there unless we get really desperate. They didn't like it when we sent somebody out to investigate when we first spotted them, remember. We don't know what they might do if we tried again. But if they chose to disapprove, we wouldn't have a prayer of doing anything about it. If Sandy's aboard, she might be the first to suffer."

Jonel's mouth was dry. What Clark had just said was true, and he was giving Jonel no satisfaction at all.

"On the other hand," said Clark, "we already know there are human conspirators and we have investigators who are experienced in dealing with such types. They're already looking for them. So until we get something more concrete, I'd say we should concentrate our efforts there. Turn the new incidents over to the investigators who are already on the job and tell them to see if they seem to tie in. And then wait."

Jonel pressed his lips tightly together, thought for a few seconds, and then said, "I guess that's all we can do. Thank you, Mr. Clark." Intellectually, it made sense, but he felt far from satisfied as he turned to go.

And, he reflected as he went through the door, something in Clark's manner seemed to have undergone a subtle change—but he couldn't put his finger on what it was.

Clark watched Jonel go with a feeling of regret. He could easily and fully sympathize with the young man, but he knew little else that he could do at this point. The decisions had seemed to come easier than some, but there were still the lingering doubts about whether

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they were as good as they might have been. He had only one other idea that he had not mentioned to Jonel, and that was to try to contact the Kyyra ship by radio. He would do that, of course—he had not mentioned it to Jonel only because he saw no point in raising false hopes.

The conspiracy investigation bore limited fruit that same afternoon. The hospital staff finally started letting phone calls through to him that day, and he got one while he was in the midst of eating what they called a lunch.

He picked up the receiver with his mouth full. "Henry Clark," he said mushily. "What is it?"

"You did say Henry Clark, didn't you?" said an unfamiliar, self-assured man's voice. "This is Investigator First Thomas Rodburg, at the spaceport. I think we have a lead on your conspiracy case."

Clark swallowed hastily and pressed his ear more tightly into the receiver, feeling a surge of excitement tempered by caution. "Yes?" he said clearly. "Anything on where Mrs. Turabian and the Kyyra have gone?"

"I'm afraid not. Sorry. This goes back farther. It's about the attempt to blow up the Kyyra landing craft. I've been interviewing a guardsman we overlooked before, and he seems to have most of the pieces we were missing to put together a story. But he's withholding a key name and I think you may be able to get it out of him. Can you get over here?"

"I'll be there," Clark said flatly. "I may have to browbeat somebody here, but I'll be there as soon as possible. Hold things together. And thanks for calling."

As he hung up, he frowned. *Overlooked?*

He did have to do a little browbeating, but he had enough of his energy back to do it reasonably well. Within the hour he was dressed, discharged, and riding to the spaceport in a comfortable seat in an ambulance. The gate guard at Kennedy told them where to find Investigator Rodburg. As soon as the ambulance pulled up to the appropriate door, three attendants helped Clark out of it and into a motorized wheelchair. They stayed with him through the corridors as far as the room the gate guard had named.

There a tall, rugged man of fifty or so, with smooth iron-gray hair and wearing a business suit of conservative cut and expensive material, was waiting in the hall outside the door. He came toward them as they approached. "Mr. Clark?" He extended his right hand, glanced at Clark's shoulder, withdrew it and substituted the left. "I'm Tom Rodburg. Hope you're feeling better."

"Better," Clark grunted, taking the investigator's hand perfunctorily. He turned to the ambulance attendants. "Thanks, fellows.

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I'll call you if I need you again."

They left. Clark turned back to Rodburg and stared at him with frank amazement. "How in the world could you overlook a guardsman?"

Rodburg smiled. "I guess it does sound a little odd, doesn't it? Come on in and meet him."

He opened the door and let Clark precede him into the room, the wheelchair motor whirring softly. Clark looked around as he entered. Long gone were the days of interrogation by a single bare incandescent bulb dangling in front of the suspect's eyes from the ceiling of a dingy room. This room was hardly different from any modern office, with a clean desk and a few other pieces of furniture, all uniformly lighted by a fluorescent ceiling. There was a single window, too, behind the desk, but a closed venetian blind completely blocked any sunlight from mingling with the fluorescence.

The "suspect" sat in a chair facing the desk; the only visible survival of the old methods was the fact that he was strapped into it. He was in uniform, a small, slightly built fellow of nineteen or twenty with sandy hair and wire-rimmed glasses—and obviously very nervous.

His eyes darted anxiously back and forth as Rodburg sat down behind the desk and Clark parked his wheelchair in a position where he could easily see both of the others. He felt a little uncomfortable about trying to squeeze information out of anyone. He did not consider himself an imposing figure under any circumstances, and being in a wheelchair with a bandaged shoulder and a useless arm wouldn't help. But maybe Rodburg's presence would.

The investigator looked straight at the young guardsman. "The gentleman who has just joined us," he said, "is Lieutenant Commissioner Henry Clark. You recognize the name?"

The guardsman gulped. "Yes, sir."

"Tell me who Mr. Clark is."

"He's in charge of the investigation of the danger to Earth and the aliens' offer to move it."

Rodburg smiled approvingly. "That's right. Tell the Commissioner who you are."

"Guard Corporal Michael J. Rosser, sir." A muscle in Rosser's arm twitched as if he had a reflexive compulsion to salute but the straps prevented him.

"Thank you, Michael," Rodburg beamed. "Were you assigned to guard the spacecraft in which the Kyyra visitors landed at Kennedy Spaceport?"

"Yes, sir."

"When were you last on duty there?"

"The night of . . . I've forgotten the date again, sir. But it was the night before the saboteur got into the area. I'm sure of that."

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"What time did you go off duty that night, Michael?"

"At 1900 hours, sir."

"And then?"

"I caught a plane. I was being transferred to Houston, Texas."

Rodburg turned to Clark. "There's your explanation of how we overlooked him, Mr. Clark. We originally concentrated our inquiries on guardsmen who were on duty at the time the saboteur was spotted, and that wasn't until five o'clock in the morning. But the man was already inside the area when he was spotted and it wasn't certain how long he'd been there. The area is large enough, and has enough scrub palmetto and such, that somebody could conceivably hide there for a while without being spotted. So after our first questioning yielded nothing—and then we re-questioned the same men, at your suggestion—we started extending our efforts to other guardsmen who were in the vicinity but not on active duty at the time. And to those who had been on duty in the hours preceding the incident. Since Corporal Rosser had been not only off duty but out of the state for several hours when it happened, and was out of the state when we were doing our first interrogation, we didn't get to him until we'd exhausted quite a lot of other possibilities."

Rodburg turned back to Michael Rosser. "Let's get to the interesting part now. Michael, did anything unusual happen before you went off duty that night?"

Rosser averted his eyes and spoke almost inaudibly. "Yes, sir."

"Tell the Commissioner what it was."

Rosser's voice became even fainter. "I let someone into the area."

"Louder, please. Speak up, Michael."

"I . . . I let someone into the area, sir."

"How many people did you admit?"

"Two, sir."

"But the log book at your post shows only one man being admitted that evening."

Hesitation. "Yes, sir."

Clark frowned, listening attentively. What kind of crazy incompetent was this corporal?

"That's very irregular," Rodburg told Rosser. "Anyone who was admitted to that area at any time was to be promptly recorded in the log book. Wasn't that your understanding?"

"Yes, sir."

"Then why wasn't this other person recorded?"

"Because the one who was recorded told me not to record the other."

Clark pressed his lips tightly together. There was no excuse under the sun for anything like this happening.

"It took us hours to get him to admit even this much," Rodburg

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told him. He turned back to Rosser. "Do you do everything anyone tells you to do, Michael?"

'No, sir. Only certain people."

"I see. Now let me be sure the Commissioner and I have the picture correctly. Two men—let us call them Mr. X and Mr. Y—came together to your gate and asked to be allowed into the restricted area. You let them in. But you only wrote down Mr. X's name—which we therefore know, assuming he was telling the truth—because Mr. X told you *not* to write down Mr. Y's name. Is that correct?"

"Yes, sir."

"Why did you do as Mr. X told you?"

"Because I recognized him as somebody very important, sir."

"You recognized him, you say. So I take it you believe the name your log book shows for him is correct?"

"I'm sure of it, sir. I recognized him from pictures, and his credentials were completely in order."

"And you say he was important. So important that you thought he might be exempt from your standing orders?"

"Yes, sir."

"And you didn't check with your commanding officer?"

"No, sir. Mr. . . . the one you're calling Mr. X told me not to do even that. He told me Mr. Y was a photographer here to take some special pictures that were vital to Mr. Clark's committee's investigation, and no one must know he was here until after the pictures were presented to the committee."

"Not even your commanding officer?"

"Not even my commanding officer . . . sir. I thought I was doing my duty. I really did."

"Hm-m-m. Mr. Y was supposedly a photographer. Did he look like a photographer?"

"Yes, sir. He had two cameras around his neck. And an equipment case."

"Did you look inside the case?"

"No, sir."

"I see." Rodburg turned again to Clark. "You probably see the picture, Mr. Clark. We can put this together with items we've got from some of the other guardsmen. Mr. X came back out of the area through the same gate at 1930 hours, and dutifully checked out with the guard then on duty. Since his was the only name recorded, and Rosser was gone, the new guard saw nothing even slightly unusual about the incident. But nobody has any record of the photographer coming back out. Granted, he could have pulled some similar trickery on the way out, but it would have been harder and we have no evidence that anything like that happened. It seems much more likely that he hid there until late at night, with a photographer's case loaded with explosives and possibly other clothes. If he had enough bulletproof clothes, that could ex-

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plain how he managed to escape even when he was being shot at by supposedly competent marksmen—though the details are still a little hazy there. Anyway, we'd like to get this 'photographer's' name if at all possible, but Michael has refused to give us one. I think he's still confused about whose orders outrank whose. But I think he understands that nobody stands higher in the investigation of the Kyyra matter than you do."

Clark looked at Rosser. "Do you understand that, Michael?"

Rosser nodded. "Yes, sir."

"So if I ask you to tell me Mr. Y's name, you understand that that countermands any previous orders you have—even from Mr. X?"

"Yes, sir. But I still can't give you his name."

"Why not?"

"Because I was telling you the truth before. Mr. X didn't give me Mr. Y's name. I can give you a description, but that's all."

Clark stared at him for several seconds and then turned back to Rodburg. "Well, Investigator, I don't know what else I can do. I have a hunch he's telling the truth. Even if he had been given a name, under the circumstances it would probably be phony. Don't you think?"

"Very probably," said Rodburg. "Well, we tried. Thank you for coming over, Mr. Clark."

"Quite all right. May I ask you one question before I leave?"

"Certainly, sir. What is it?"

"Only the obvious one. Who is Mr. X?"

Any trace of a smile that might have been on Rodburg's face vanished abruptly. He nodded solemnly toward Rosser. "Who was Mr. X, Michael?"

Rosser said the name.

And Clark felt his own face go white with shock.

XVII

Sandy woke up feeling relaxed, refreshed, and intensely alive. The room was light again when she opened her eyes, and for some time she just lay there on her back, looking up at the ceiling and letting her eyes roam lazily over the almost endlessly varied metalwork all around her. Gradually she became conscious that the "aura" was still there, and this time it let her feel the excitement of her discovery. She wanted to tell Beldan about it, but she didn't know where he was or how she might find him. She wondered briefly whether some part of the metal artistry all around her might really be a communicator, but quickly decided that even if it was, finding it would be like finding the proverbial needle. So she shrugged off the search and went into the adjoining bathroom—with facilities sufficiently familiar to give little problem, and with every wall a single mirror—to get ready to meet the new day.

And as soon as she came out,

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she heard Beldan outside the main wall. "Sandy," he said softly, "may I come in? I've brought you some breakfast."

She started to open the door for him, then chuckled as she realized that she wasn't even sure where it was—which was a mildly disconcerting sensation. "Come on in," she called, going to pick up her food converter. An oval door appeared in the middle of the wall, Beldan stepped in with a tray similar to the one they had shared last night, and the door disappeared.

"Good morning," Sandy smiled. "Thanks for bringing breakfast. Will you help me eat it?" They sat down on the edge of the bed and Beldan set the tray between them. The bed, soft and with sunken center when Sandy wanted to sleep on it, now obligingly became level and firm. Sandy engaged in a few minutes of small talk as they ate, but only for a few minutes before she turned to the things that had really excited her. "Beldan," she said confidentially, "I think I feel your God."

He *may* have looked slightly startled for a fraction of a second, but at most only slightly and only a small fraction. Then he said, "What does it feel like?"

She tried to tell him. "It's . . . elusive. Hard to describe. But it's a kind of feeling I get about the whole place. Ever since I came aboard the ship I've felt . . . comfortable. Relaxed. Safe. It's a good feeling, on the whole. Humans sometimes say places have auras or feelings about them, but this one's more definite than any I've noticed on Earth. More positive. More . . . palpable. I felt it all of a sudden, as soon as we came aboard. Then last night some unpleasant feelings tried to form in my mind, and something seemed to come along and wipe them out as soon as they started. Like instant negative feedback from something that didn't want me to feel bad."

Beldan nodded, smiling slightly. "That's Him, all right. Of course, we don't usually think of it in quite such personal terms as 'Him'. That's a carry-over from my trying to find the closest analogy of the concept in your language. You may remember we spoke of this that first time I visited you and Jonel."

Sandy nodded. She remembered that, all right. She doubted that she could ever forget his expression or her own feelings as he told her that his God was dying—as matter-of-factly and as poignantly as a human might say that his closest friend was dying. She had never dared to bring the subject up again until now. But if he was as willing to talk about it as he now seemed . . .

She had to know. "Beldan," she said earnestly, "I don't know how to ask this or even whether I should ask it. So I'll just go ahead, however clumsy I may be, and if I say anything you don't want to talk

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about, you just tell me to shut up. O.K.?"

"I can hardly imagine a need to speak so harshly to you, Sandy. What do you want to know?"

"This thing I feel . . . your God . . . or whatever I should really be calling it. What *is* it?"

"That," he said, "is a long story. Much of it I don't even know because it happened so many generations before I was born. But I can tell you that it corresponds roughly not only to your concept of 'God' but also 'government'. Perhaps we should call it 'the Coordinator'. It is conjectured that at some time in the dim past, before the Coordinator was built but after civilization had attained a high degree of complexity, decisions were made by unlinked minds as in your present culture. But no one mind had a clear enough understanding of all the factors and relationships involved in any decision to make it with real wisdom." He smiled. "I could never have conceived this possibility before visiting Earth and actually seeing the things that happen there, but perhaps there were even conflicts of interest and personality clashes harmful to all concerned.

"The Coordinator can be thought of as a huge mind, originally constructed by our ancestors—or their counterparts on any other Kyyra planet—to regulate all the interpersonal relationships on a planet into a harmonious and smoothly working whole. It could see problems such as food and energy supply in their entirety. It could see to it that suitable numbers of suitable people did all the required things to achieve optimized solutions, while nobody did detrimental things. Part of this involved periodically making adjustments in indi-

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vidual minds to eliminate conditions that might produce unhappiness or inefficiency or—presumably—conflicts. But about this last I can only conjecture. If ever the Coordinator had this job to do, it has done it so well that the need no longer becomes strong enough to be noticed."

Sandy nodded. "And that's why you felt uncomfortable on Earth, where it's always so strong it's taken for granted." Beldan nodded. "And you really meant it as a simple question when you asked, 'What is war?' "

"Yes. Since then I have learned the answer, of course. But I still find the concept hard to grasp. It's so utterly alien. And so horrifying." He paused, then added, "And the concept of horror itself is almost totally alien to us."

Sandy sat silent for several seconds. Then she asked, "For these 'periodic adjustments' you spoke of—does a person have to go somewhere periodically to have that done?"

"Not at all. The Coordinator operates continuously. It is constantly monitoring the workings of all our minds, using the 'nonphysical' communication techniques I spoke of in the first meeting you attended, constantly making small adjustments so that large adjustments never become necessary. That is the 'aura' you felt. As you can see, it is a source of great comfort to us."

"And that's what you meant you missed when you said you were bothered by the absence of God on Earth." Sandy sat silent again, this time for a longer period, trying to fully grasp what this Coordinator was and what it meant to the Kyyra. It was a machine built by their ancestors to mold minds—but it was also, from the point of view of somebody living on a Kyyra planet, something very close to an omniscient, omnipotent, benevolent being which was never far away. Its presence was always felt, it controlled the world in which they lived, it could see and solve huge problems with a wisdom far beyond any of their single minds, and it cared deeply and intimately about the welfare and happiness of every one of them.

In short, it gave the Kyyra things that many human religions had sought for thousands of years to give their adherents. But it was far more real and immediate to every Kyyra than the human gods had ever been to almost any man. Sandy was not at all sure she would want men to have one, but she had experienced it and she felt some inkling of what the prospect of its loss must mean to the Kyyra. Only an inkling, she knew—but

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even that was quite staggering.

Finally she asked, very gently, "What did you mean when you said, 'We're killing Him'?"

His eyes jerked convulsively back into his head and returned slowly. As they did so, he turned them to stare at a shiny medallion in a corner. "That is still painful to talk about," he said.

"Then don't."

"No, I will. I can do it here; the Coordinator will ease the pain in my mind as I do so. And it wants me to tell you now." Sandy blinked, startled at those words. But before she had time to think much about them, Beldan went on, "Imagine yourself in our position when we knew the galactic core had begun to explode. Alone on a group of planets which our ancestors had shaped into idealized, self-regulating homes for our kind. Life was a comfortable routine; each of us had a part into which he was well fitted by the Coordinator.

"Suddenly there was no more routine. We were far closer to the exploding core than Earth is. We could not even consider going into hiding beneath our planet's surface. We were already living mostly underground, and that was no permanent refuge at that distance. We had no choice but to flee. O.K.—so naturally we consulted the Coordinator. It had helped us through minor crises before; now it would help us through a major one. It told us how to escape. We still occasionally moved planets ourselves; our ancestors before civilization stabilized had even done it with inhabited planets. The Coordinator remembered how and told us. But the energy demands were so great, for the distances and speeds we had to use, that we could barely make it. To get started we used several methods together, any one of which you would find awesome. Even so, by journey's end little will remain of the planet that started. Practically all our accustomed civilization will be gone. And the Coordinator will be gone. Because as you might guess, with all it must do, the Coordinator is both large and delicate. By its own instructions, it must be sacrificed to enable us to reach M31. Already it is operating at a reduced level. By the time we reach our destination it will be totally gone." He finished in an almost inaudible voice and then sat staring silently into space.

"I'm sorry," Sandy whispered awkwardly. Then, after a while, she said, "This is happening because a planet uses its own mass as fuel. But the ships don't. Does that mean the Coordinator I feel here will survive the trip?"

Beldan shook his head. "No. Not even that. The ship does not carry its own Coordinator. It carries only a branch nucleus to keep the ship and its inhabitants linked to the planet we're convoying. When the planet finally loses its Coordinator,

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so do all its convoy ships. *None* of the Coordinator will remain."

Sandy said no more about it then. Beldan needed some time to recover from the obviously painful experience of talking about it—in a place where painful experiences were actively suppressed. But there was another question she would have to ask. She could no longer avoid it.

Rao had said the Kyyra had gone to a great deal of trouble and expense to travel very slowly. Now Sandy understood, as no other human did, that the cost to them went far beyond anything Rao ever imagined.

And the question loomed larger than ever: *why?* What reason could be so compelling as to drive a race to sacrifice its very gods?

Beldan bounced back quickly; such was the soothing and steadying influence of the Coordinator. He showed her some more of the ship; they spent some more time sitting and talking in a couple of the gathering halls, each with its own distinctive décor. The traumatic breakfast conversation became a thing of the past, unmentioned and unlamented.

Until finally, several hours later, Sandy managed to steer the conversation back in that direction. And when she got it close enough, she said, "Beldan, do you mind if I ask you one more question about . . . what we were talking about when you came to my room earlier?"

His eyes jerked slightly. "You mean the Coordinator?"

"Yes."

He was silent for a few seconds. Then, cautiously: "What is your question?"

"That first day at the spaceport back on Earth—the first day Jonel and I were there, I mean—Clark asked you if it wouldn't have been cheaper and easier to travel much farther above the speed of light. Wasn't he right? I mean, it seems to me that by doing that you could still have escaped and maybe saved the Coordinator too. Because the fuel requirements would be much less . . ." She stopped, looking at Beldan staring stonily straight in front of him. "Wouldn't they?"

His answer might have been a playback of the one he had given that long-ago afternoon. "Perhaps."

And Sandy repeated Clark's next question. "Then why didn't you do it that way?"

But this time Beldan answered it—a curt, uninformative answer, but more of an answer than he had given before. "Because the Coordinator said to do it this way."

"Why?" Sandy asked at once, and this time she did it very deliberately.

But Beldan said nothing. After waiting several seconds, Sandy asked less harshly, "Don't you know why?"

He nodded slowly. "We know why. But it is painful to talk about.

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And it does *not* want me to tell you that. So I will beg off."

Sandy said no more about it. But she spent the rest of the day hardly hearing the rest of what went on around her, because the things she had already heard were so busy chasing each other around in her mind.

And that night she went to sleep full of the excited feeling that she had almost put everything together into a pattern. Just before she dropped off, something Beldan had said shortly after they boarded the ship popped into her mind and she felt with sudden stark certainty that it was the one piece she still needed to complete the picture. She didn't see quite where to put it yet, but she felt sure she was right on the verge of finding its place. And then . . .

She had no idea whether she was going to like the completed picture.

XVIII

"*You,*" Clark said in a tone full of utter disgust, looking up from his desk as "Mr. X" walked into the trap. "You, of all people. Rao didn't really surprise me. But you, Joe? I'm shocked."

Sanchez stood in front of the door as it clicked shut behind him, showing no more evidence of his discomfort than an irritated frown. He glanced from side to side at the two guardsmen who had appeared from opposite sides of the door and thrust long guns into his ribs as soon as he entered. Then he stared at Clark with an external coolness under which Clark knew he must be seething. "What the devil's going on here, Henry? What are you talking about? I got a note that said you wanted to see me—"

"You bet I do!" Clark rasped. "You know why as well as I do, but if you think it's still worthwhile to bluff, come and read this. Slowly." He picked up the single piece of paper on the otherwise clear desk in front of him and shook it so it rattled.

Sanchez stepped forward, the two guardsmen walking sideways to keep him covered. Investigator Rodburg appeared from a corner to frisk him. Sanchez gave him a dirty look, then stopped in front of the desk and read the statement Rodburg and Clark had prepared, his face impassive. Rodburg stood up and offered him a pen.

"It wasn't hard," Rodburg told him, "once we got around to recalling the guardsman who let you in. One thing led to another, and in just a few hours after our first breakthrough, we'd managed to see quite a few of the kinks we'd overlooked before and pinpoint quite a few of the key figures. We still haven't tracked down your 'photographer', though. If you'll be good enough to—"

He broke off and watched silently as Sanchez methodically tore the paper into very small pieces and distributed them over

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the rug, watching them flutter gently to his feet. When the last one had landed, Sanchez looked up at Clark. "I'm not signing any stupid confessions," he said quietly. "Is that all you wanted, Henry?"

"No," Clark said, just as quietly and without blinking. "That was just a legal formality. I didn't really expect you to do it—yet. What I really want to know is: why? Because you're not going to deny it, are you? Whether you sign the paper or not."

Sanchez curled his mustache in a sneering, patronizing smile. "Sure, Henry. Anything you say, Henry. What do yot want to know?" He reached into a pocket. The guardsmen followed him nervously with the muzzles of their guns, then relaxed slightly as he took out a cigar and lighter. "Do you mind if I sit down?"

Clark stared at him for a few seconds, marveling at how little he knew this man. He had thought he knew him well, as one who could be trusted and relied upon for aid and counsel, as his title implied. Although, now that Clark thought back, there had been warning signs of a growing split ever since the Kyyra had landed. If only he had been astute enough to recognize them . . .

He nodded slightly toward Sanchez. "Go ahead. Over there." He gestured toward an armchair. Sanchez thanked him and went over to it, closely followed by his guardsmen. He sat, crossed his legs and squirmed around until he found a comfortable position, then lit up his cigar and leaned back, stretching contentedly. "You were saying?"

Clark could easily find the exaggerated show of nonchalance unnerving, but he knew that was exactly what Sanchez wanted. So he refused. "I didn't really think Rao would go in for things like sabotage and assassination plots," he said calmly, "but I wasn't terribly surprised when I found that he had. I knew he was very much against going along with the Kyyra, and nobody's really understood him these last few years. But you, Joe—you're another story. I never even realized that you had formed a definite opinion about going. If you were against it, why didn't you say so?"

"Because," Sanchez said tightly, "you wouldn't have listened."

Clark laughed nervously. "That's ridiculous, Joe. Of course we would have listened. We always listen to you. That's why we've kept you on all these years. Because we value your advice."

"Not this time, you wouldn't have. I saw something happening to you, Henry, and it scared me. I knew I had to fight you, and I was afraid I didn't dare let you know I was doing it or you'd find some way to stop me." He paused, then emitted a harsh chuckle. "You see, Henry, I was afraid of you."

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Clark tried to laugh and frown at the same time. The thought was so ludicrous that he couldn't believe Sanchez was serious. "*Afraid* of *me?*" he said incredulously. "Why could you possibly be afraid of me?"

"Because," said Sanchez, and his face was deadly serious, "I saw you starting to think of yourself as a dictator."

Clark stared at him in stunned, unbelieving silence for a long time. Then he broke into loud gales of laughter. "Come on, Joe!" he said finally. "You can't be serious."

"I've never been more serious in my life." Clark's laughter subsided into shaken attentiveness as Sanchez went on. "I half suspected it from the start. You *wanted* to believe in the Kyyra, and you were suspicious of people who didn't. Maybe you could never see it in yourself, but I saw it." He paused briefly, then went on, the pace of his words quickening. "I never did trust them and their offer. There was too much power there to trust without knowing why. And you could never get them to tell you why. Why should that be unless there was something sinister about what they wanted? I agreed with Rao—I smelled a rat. And I figured, better the devil you know than the devil you don't. But you—you just kept making excuses when you couldn't get at the real issues. It became more and more obvious to me, as I watched you, that you were headed for a decision to go whether you could get at them or not. And you'd do whatever it took. You already had a position with too much opportunity in it—partly because Gerber never took either the core explosion or you very seriously. And Rao and I could easily see you taking it a lot farther." Rao's parting words came flying up from the depths of Clark's memory, and stung: *Or are you just going to play God?* Sanchez finished, "What finally clinched it for me was that night in my apartment when you started talking about our whole politico-economic setup being wrong to pull people together enough for the trip. Remember, Henry? You said something about worldwide martial law with a really strong central authority . . ."

Clark nodded. "I remember. But you missed the whole point. I didn't like the idea any more than you did. That was what was bothering me." *Yet,* he reflected uncomfortably, *I still don't see any nice way around it . . .* He shoved the thought aside and forced a little laugh as he thought of another memory. "You know," he said musingly, staring at the blank desktop, "the first time I met Rao and told him about this, he said something about not wanting to live like a rat in a hole. Ironic, isn't it? Because if we *don't* go along with the Kyyra, it's going to be like that for everybody—for a long, long time.

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Unless they prefer suicide." He shrugged and looked back at Sanchez. "How did you people think you were going to get what you wanted, anyway? The efforts I saw looked pretty clumsy."

"I don't think blowing up their shuttle was such a clumsy idea," said Sanchez. "It didn't quite work, but it came close. Another minute before our man was spotted, and it would have been too late for your side to stop him. And I still think that might have done the trick. That one thing might have put an end to the whole foolishness of talking to the Kyyra."

"How?"

"By making them so mad they would withdraw the offer. By making them decide we weren't worth saving."

"You idiot! What made you so sure they wouldn't go a step farther and strike back? It wouldn't be much trouble for them to make *sure* we weren't saved before they went on their way."

Sanchez smiled tolerantly. "We weren't sure, of course. Just as you say. It was a gamble, but we thought it was a good one. Sure, it wouldn't be hard for them to wipe us out. But why should they bother? We're no threat to them."

"A house spider is no threat to you or me, either. But people step on them." He stared at Sanchez; Sanchez stared disdainfully back. "So that was your reasoning for the sabotage try," Clark said after a while. "And killing me? What was that supposed to accomplish?"

Sanchez averted his eyes slightly, as if that question could still bring him pain. "That wasn't supposed to happen at all," he said quietly. "Oh, it was among the contingency plans, but only as an extreme last-ditch thing to try if all else failed. If it got to the point where you obviously had too much influence and nothing else was going to stop you. Even then, nobody liked the idea. The most they could hope to gain from it would be getting somebody less dangerous to take over in your place. And maybe the commotion would make the public leery of the whole business, which might make them a little more ready to listen to our side. On the other hand, maybe somebody even more anxious to go than you might take your place."

"You still assume I'm anxious to go. I hadn't committed myself to anything, you know. I still haven't."

"That's what you say. Maybe you even believe it. Anyway, assassination's never been a dependable tactic. Sometimes the public winds up deifying somebody half of them hated when he was alive. So nobody wanted to do that unless everything else had been tried first." He paused and looked at Clark. "I was even more against it than they were. I hope you realize that, Henry. I've known you too long. Even if you become dangerous, I couldn't want to—"

"How noble," Clark interrupted,

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staring daggers of contempt at the other. "And stop calling me dangerous." He knew the idea was preposterous, but it still made him uncomfortable to hear Sanchez say it. He couldn't rub out his years of respect for the man that easily, even now.

"You say it wasn't supposed to happen," he muttered bitterly. "Then how do you account for this?" He jerked his good hand toward his bandaged shoulder.

"It wasn't the best conspiracy in the world," said Sanchez. "Not enough really qualified people—and too many others. One of the others got to you. A trigger-happy incompetent who had no place in a well-organized plot. But he got into it, and then he got impatient. Thought he knew better than the people running it what should be done. So he went off prematurely, on his own. I'm sorry it happened."

"That helps a lot," Clark said coldly. "Well, what do you have to show for it all? What have you accomplished? The decision's still going to be made—by us, not by your gang of conspirators."

"Is it?" Sanchez allowed a faint, cynical smile to creep back onto his lips. "Are you sure there's still a choice to be made?"

"What do you mean?"

"Looks to me like the Kyyra have left."

Clark said nothing, but he felt his lower lip quivering slightly. He had just assumed they would be back. He knew their ship was still in orbit. But now, for the first time, Sanchez' needling remark suddenly drove home to him the realization that that proved nothing. They might not be back—ever.

And he was a little surprised at how much that bothered him. There *had* to still be a choice—more than one option.

Surely the whole affair couldn't end like that. It couldn't just fizzle out, after all these long weeks of mental anguish, just because people couldn't make up their minds.

Because *he* couldn't make up his mind . . .

The thought nagged him as he returned to his apartment for a late supper. It nagged him as he ate, slowly and hardly tasting the food. It nagged him as he stretched out on the bed after supper, with the lights low and his eyes closed, to try to think of something he might do to force a sound decision—after he got back the chance to consider a decision at all. He had been through this so often that he was used to beginning the effort with the possibility of success not even in his mind. This time he didn't even know whether the Kyyra would ever be coming back to ask if a decision had been reached. Their ship was still there, all right, but it might just be preparing to leave. And then all the thinking and talking about a choice would have gone for nothing.

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He had had the communications staff at the spaceport try to radio them, of course. But there had been no evidence that the calls were being received. Was anybody listening?

I have, Clark thought miserably, *no way of knowing. No way at all.*

He drifted down to the soft border of sleep when the knocking on the door brought him back up. It began softly and sporadically—the first taps probably never reached his consciousness at all—but as he failed to answer, it grew steadily louder and more insistent. By the time he sat up on the edge of the bed and turned up the lights it was quite a racket. "O.K., O.K.," he grumbled. "I'm coming. Don't knock the door down."

He padded barefoot across the room to the door. He hesitated, standing with his hand poised on the bolt. "Who's there?"

"Please open the door, Mr. Clark," said a voice—and Clark's mind leaped fully awake at the sound of it.

It was a Kyyra voice.

He fumbled with the bolt in his haste to open the door. When he finally got it, he looked out at the Kyyra standing there in the hall. There was only one of them—aloof, dignified, slightly taller than the door itself, dressed in the iridescent robes he had come to regard as inseparable from them.

But this individual was none of the three he knew. And nobody had called to tell him that a Kyyra shuttle had returned to the spaceport. He frowned. "Who are you? And how did you get here?"

The Kyyra shook his head slowly. "It is not necessary to discuss that," he said. His command of English was not quite as good as Beldan's and he made no attempt to accompany his words with human facial movements. "May I come in?"

"Why should I let you come in?" Clark asked, still frowning. "I don't even know who you are. None of this makes—"

"I bring an important message concerning the young lady," the Kyyra interrupted. When Clark looked at him in momentary confusion, he added, "Sandy Turabian."

But of course by that time there was no longer any need for the clarification. And Clark lost no more time in getting the messenger into the room and the door closed and locked.

XIX

The dreams about Dianne had finally stopped.

And, as Clark sat in the office, waiting, refreshed by the best night's sleep he could remember in far too long, he felt strangely sure they would not return. He felt a calm such as he had known far too little, of late, mingled with the excitement of anticipation—and certain other things that he tried to

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keep from becoming too strong. At every little sound, his eyes jumped to the door, and then, when it failed to open, back to watching those who were waiting with him. Jonel, in the armchair to his left, watched the door with even more feverish anticipation than Clark's own. Sanchez, strapped into the same interrogation chair in which the young guardsman had first revealed his role in the conspiracy, just stared sullenly. Clark still didn't quite understand why he had agreed to let Sanchez be here this morning, unless it was some vague hope of learning still more by watching his reactions. But he had always had a weakness for giving in to requests like that, unless he saw some very obvious reason for refusing.

Jonel glanced impatiently at his watch. "They should be here any minute," he said. "Beldan was always so punctual it was almost funny."

"Don't try to pin him down to the minute," Clark advised. "That's too much to expect."

"Don't worry." Jonel paused, smiled slightly, and shook his head. "I'm glad she got a chance to go and visit; I hope it was a good trip. But I still don't understand why she didn't leave word for me."

Clark, despite a slight upwelling of the anger that he was trying to hold down, resisted the temptation to tell him.

Then steps sounded outside the

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door, the knob turned, and the door swung open on Sandy, with Beldan looming right behind her. Sandy walked in and went to Jonel, smiling as calmly and happily as if utterly unaware of the concern she had caused. Jonel rose from his chair and hurried to meet her, more overcome with emotion than Clark had ever seen him before. He took her in his arms and didn't let her speak for a while. When he finally did, she seemed a little puzzled, but not at all complaining. "My goodness!" she said with a light laugh. "You'd think I'd been gone for a long time or something."

"We were afraid you were going to be," said Jonel.

Meanwhile Beldan had stepped into the room and stood just inside, waiting. Clark stared at him coldly, saying nothing. Finally Beldan said quietly, "Our deal is completed."

Clark nodded slightly. "Yes."

Jonel and Sandy both noticed the brief exchange. They both frowned slightly, then shrugged almost imperceptibly and turned back to each other. "Anyway," said Jonel, "You're back. That's all that matters. But why didn't you tell me where you were going?"

She looked at him and frowned, apparently startled. "Didn't you get Beldan's massage?"

She turned away from Jonel to face Beldan squarely. The unsuspecting good humor that had been on her face when she came in had evaporated in an instant. Now she was bewildered and vulnerable. "Didn't you leave the message?" she asked Beldan. "The one only Jonel could read?"

Beldan did not look at her, but kept his gaze fixed in front of Clark. "No," he said. "I . . . I could not."

"You *couldn't?* But you promised! And I thought—"

"I'm sorry, Sandy."

"But why—"

"I cannot explain."

She stared at him for a long time, her face full of hurt astonishment. Then abruptly, she became composed, purposeful. "So you can't explain, can't you?" she said in a low, ominous voice. "And you couldn't explain why the Kyyra wanted to move the Earth. I could understand that, Beldan, once I realized what the reason was. But that was different. You weren't breaking a promise then. But now you are, and I thought that was something you never did." She stopped, breathing heavily, and then went on, suddenly louder and faster. "And now I'm fed up with all this secrecy business. I think maybe we'd all better just get everything out in the open and work from there."

Now Beldan did look at her, his head turning so sharply that the motion seemed involuntary. For a moment his face contorted into an alien expression that Clark could not read. Then it played rapidly

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through a series of human expressions, none of them as skillfully executed as usual. But in that fleeting play of masks Clark was sure he saw surprise and fear and apprehension.

And he felt himself rising from his seat in his own excitement as the meaning of Sandy's words penetrated to him. "Sandy!" he burst out. "You found out why they wanted to do it?"

With an effort, he forced himself back into the chair. Beldan smoothed the ruffled emotions out of his face and stood attentive but otherwise inscrutable. Jonel and Sanchez both stared at Sandy with something like the fierce curiosity burning in Clark. There was no question as to who had the floor.

"I think so," Sandy nodded. "That is, I think I figured it out. I haven't checked it." She paused and looked at Beldan. "Beldan," she said, a touch more gently than before, "I haven't talked to you about this and I'm still not sure how I react to it myself. So let me give you a chance to say something before I tell them. I really think I've figured it out, and I really think I should tell them. Assume I'm right. Do you want to try to talk me out of it?"

Beldan stood silent for many seconds—longer than Clark had ever seen him hesitate before answering a question. Finally, very quietly, the reply came. "No. Go ahead. Tell them what you think you've figured out. I shall be interested." He stood waiting, still and impassive.

Sandy hesitated briefly, not looking directly at anybody in the room. "I don't know how to tell this," she began finally, almost apologetically. "Some of you are going to say it isn't logical deduction at all, but just intuition. O.K.—so be it.

"There were a lot of things about the Kyyra and their offer that struck me. None of them seemed to say much or mean much by itself. And they didn't seem to tie together into a nice neat logical chain where one led to another and that led to another and so on to a conclusion, either. But when I let them all sit in my brain and percolate for a while—they finally seemed to line up and point at one thing. Anyway, if that one thing was true, it could explain all the others.

"What did we know about the Kyyra? We knew they came from much deeper in the galaxy than us—from way down near the core. So they saw the explosion long before we did and were already fleeing it. They'd been fleeing for almost the whole time, in fact, at a speed so little above c that it must have cost an incredible amount of energy to do it. And that seemed to make no sense at all. Occasionally somebody suggested that it was so they could look for races like us who needed help—but that didn't

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seem to make any sense either.

"And beyond that? We knew very little. We knew that they had superb metal craftsmen and used metals, apparently, as freely as our ancestors in the last century used paper. I had no idea, until I visited their ship, how literally true this was—and I didn't see its significance until late last night. We knew that they had capabilities and experience in handling enormous energies—energies big enough to move planets and alter stars. And we knew almost nothing else, because they—meaning Beldan, as their representative—were reluctant to talk about themselves.

"Above all they were reluctant to talk about why they wanted to help us move our planet, even though the question was of vital concern to us. Some humans suggested that that was because they were afraid to tell us their reasons—but nobody ever went so far as to suggest what they might have to hide. I suspected all along that they were wrong, because I knew Beldan, even if no one else did. But now"—and here the words seemed to come with difficulty—"now I'm almost sure they were right."

She stopped. For a moment she looked at Beldan, standing as if frozen with his eyes glued to her face, and then dropped her own eyes to stare at the floor. After several drawn-out seconds, so quiet that Clark thought he heard his own pulse pounding in his ears, Jonel prodded her gently. "Why is that, Sandy?"

She stood without moving for another couple of seconds, then jerked her head suddenly erect to gaze directly at Beldan while she finished. "When I went aboard their ship, I saw that several of the striking things we already knew about them were even truer—by far—than we had ever suspected. The metal usage? Picture a thousand Kyyra all dressed like Beldan, riding a spacefaring palace of gold and silver and alloys we've never seen, accompanying a planet whose whole surface is like that. I asked Beldan how they did it and he told me—as casually as I might tell you that I grow tomatoes in my backyard—that they mine supernovas. And if they run short, they pick a star with nobody living around it and make a new supernova.

"And there was one more thing that was truer than we'd ever suspected. It cost them an awful lot to go that slowly—an *awful* lot, in the most literal sense of the word. The first time I really talked to Beldan he told me their God was dying—and when I was out there I learned what he meant. I met their God—and He really is dying. They're killing Him—because He told them to. 'He' is a computer, we would say—but one that quite literally governs their entire world through constant contact with all their minds, and in the bargain maintains a comforting aura that prac-

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tically any human would describe as a deeply religious feeling. He told them how to escape. Part of what He told them was that they should travel this way, even though part of the price is that He won't survive the trip. Beldan wouldn't tell me why, but he admitted he knew. And I could see that it must be one humdinger of a reason.

"O.K.—suppose it *was* because they were looking for people like us. Why should they want to do that—so badly that they'd kill their God to do it? Suppose they felt an obligation to—a very powerful obligation. Why should they do that? Maybe because of something that they'd done in the past. What could they possibly have done that would make them feel that guilty—and think the guilt had anything to do with us? Last night I suddenly found the piece that finished the puzzle. It was what Beldan told me when I asked him about the metals." She stopped and looked at Jonel. "Do you see it, Jonel?"

Clark glanced back and forth between his face and hers. He had seen it happen several times before—either Jonel or Sandy would be thinking out loud about something, and suddenly the other's mind seemed to drop into the same groove and they raced on together. It happened now. Slowly, a light of comprehension washed over Jonel's face and his jaw dropped. And then, weirdly, as if on a pre-rehearsed cue, he and Sandy finished her story in unison. *"They started the core explosion!"*

Clark felt the shock through his whole nervous system. Out of the corner of his eye he saw Sanchez lean forward and turn first pale, then gradually red. In front of him, Beldan's face again went alien, and this time he made no effort to force it back into a form men could read. Sandy nodded vigorously and went on excitedly, "Yes. They were near the core when the explosion started, and they make supernovas. While the talks were going on, I was brushing up on my astrophysics, to see where it might lead. One possible cause of a core explosion is a chain reaction of supernovas. Suppose the Kyyra triggered a supernova—for energy and trinkets—and they triggered it a little too close to a densely-packed region of the core. What do we have then? A Seyfert galaxy—an industrial accident that wipes out life around billions of suns. I think if *we* did that, we might feel obliged to see if we could help a few of them out, too."

The silence crackled. All human eyes shifted to Beldan. The Kyyra envoy still stood immobile and silent, his face an unearthly mask with nothing recognizably human in it. Abruptly and noisily, Sanchez spat, his saliva arcing across the room to splatter on Beldan's shimmering robes, just below the shoulder. *"Monster!"* he screamed in a

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piercing voice of more intensity than Clark could ever have imagined coming from Sanchez. *"Murderer!"* Then, as if the outburst had drained him of something, his head drooped and shook slowly from side to side. "Not strong enough," he muttered, almost whimpering. "There aren't any words—"

"Shut up," Clark told him, very quietly and very firmly—and he did. And Clark, suddenly oddly calm and self-possessed, looked at Beldan. "Well, Beldan?"

For a moment nothing happened. Then, slowly, Beldan's face turned back into something recognizable to human eyes. But now, as never before, it was the face of someone old and weary and defeated. He nodded slowly. "The lady is right," he said quietly, "as far as she goes." He turned to her. "Your perception is remarkable, Sandy—I hope I may still call you Sandy—but you don't seem to have quite the whole picture yet. First, there is a point I feel obliged to emphasize for Mr. Sanchez' benefit, if for no one else's. It is true that Kyyra supernova operations were responsible for the catastrophe, and it happened much as you described. The star to be used was known to be in a more densely-packed region of space than any used before, and there was some slight fear. But even then the theories of supernova chains were incomplete and untested, and the risk was finally judged negligible. It was a most unfortunate miscalculation, and you are quite right that the responsibility for it rested heavily—"

"You said you had a point for me," Sanchez interrupted sullenly. "Get to it."

Beldan broke off his sentence and looked at his questioner. "Very well, Mr. Sanchez. It is simply this. I ask you to remember that I personally had nothing to do with the accident. Neither did any other Kyyra alive today. We are victims as much as you are. As I told Mr. Rao on the day I first arrived here, my father saw the explosion begin. He was one of the youngest aboard the engineer ship which triggered the supernova—not an important member of the crew, but one who was present. That is all. As for me, my whole generation was born on planets and convoy ships well on their way outward from our former homespace. I personally have never even seen the surface of my planet—though I know very well what it is like."

"You said that was your first point," said Sandy. "There is another?"

"Yes, indeed." Beldan turned back to her. "You are quite right that the responsibility rested heavily on us, and I was chosen to bear the unaccustomed burden of guilt even more heavily than most. All my life has been devoted to the effort to detect and contact races such as yours. Partly, as you have guessed, to offer our aid. But there

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is also another reason for contact."

"Yes?" said Clark.

Beldan hesitated just perceptibly before answering. Then he said, slowly and distinctly, "We need your help."

An incoherent gasp of disbelief burst from several human mouths at once. Beldan went on a trifle faster, his voice recognizably earnest and pleading despite its characteristically odd leaps of pitch. "Has it never occurred to you—not even to you, Sandy?—that our very strength might also be our weakness? We can milk stars of their energy and we can move planets to better places. But in gaining all this we have lost other things. We can convert an uninhabited planet into pure energy to drive the automatic machinery of our homes—but we cannot convert it into a new home. If we were to try, we would prove very . . . heavy-handed. No Kyyra has done that sort of thing for too many thousands of years. Even the Coordinator—the 'God' Sandy spoke of—cannot tell us how, for when the first Coordinators were built, the last natural life-forms other than ourselves were long since gone from the Kyyra worlds.

"Yet making new homes from new worlds is what we are going to have to do in M31. Even at the higher speeds you suggested, our planets would be too thoroughly ruined to serve as permanent homes when the trip was over. As it is, even most of our technology will be destroyed, so we will have to do without. It will be as if a human sailor set off on a trip in a modern yacht and reached his destination clinging to a piece of driftwood. We would be hopelessly inept. But you of Earth should be good at it. You have come far enough to have fairly sophisticated methods of shaping a planet's surface, and yet are young enough to have recent experience with a planet in a nearly raw state." He took out his pipe and began playing, very quietly.

Sandy nodded, her expression softened somewhat. "I'm beginning to understand," she said. "When I first saw you, I sometimes thought that beings so far in advance of us should have no more to say to us than we would to cavemen. But if we had just bombed our civilization out of commission and were about to take up residence in caves—well, I guess we sure could use a native guide."

"Exactly," said Beldan. "No offense—"

"Garbage!" Sanchez snarled, suddenly noisily furious again. "What incredible gall, asking us for help after what they did to us. Let them fry in the hell they've made!"

Clark looked at Sanchez with pitying scorn. "And you'll fry right along with them, you poor idiot," he said quietly. "Who will that help?"

Beldan stopped playing and told

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Sanchez simply, "Our need for help was never intended as a precondition for our offer to help you. That offer is good whether you choose to help us or not. We owe you that much. Beyond that, we throw ourselves on your mercy. But we could hope." He started to put the pipe back to his lips, then changed his mind and put it away. Somehow he no longer looked quite so old as a few minutes ago.

And Clark found that his own attitude had mellowed abruptly. Practically all of his anger had melted away, suddenly seeming so inappropriate that he thought there must still be some misunderstanding. Maybe he should raise the remaining question after all—the one he had intended to let lie. But gently . . . He nodded slightly toward Beldan. "You've suffered enough," he said, and then he tried to remember a quotation he'd read somewhere—he couldn't remember where—a long time ago. " 'The gods visit the sins of the fathers upon the children.' "

"I heard a slightly different version," said Sandy, smiling slightly and looking at Beldan. " 'For the sins of your fathers you, though guiltless, must suffer.' "

Clark nodded approvingly. That version seemed a little closer to what he really wanted to say. "Anyway," he said, turning back to Sanchez, "it no longer matters whether you think it's right or wrong."

Sanchez looked at him sharply. "Why's that?"

"Because—"

And, as if in answer, the room trembled. Not drastically, but enough so that no one in the room could doubt that it was happening.

XX

And it didn't stop.

Expressions froze on human faces all around the room. Sanchez leaned forward in his chair, straining futilely at the straps that held him there. "Earthquake!" he croaked. "Get me out of this chair!"

"Don't be alarmed," said Clark, managing to smile calmly toward Sanchez despite the butterflies in his own stomach. "It's just the engines getting started. As I was saying, it no longer matters what you think because we're on our way. The Earth is irrevocably launched."

The tremor had faded after the initial shock. Now it was only a muffled accompaniment to the conversation in the room. Momentarily that conversation halted as three human faces stared uncomprehendingly at Henry Clark. Finally Sanchez muttered, "What are you talking about, Clark? You'd better be kidding."

"Sorry," said Clark, "I'm not. Last night, when I was beginning to think the Kyyra were gone for good and I'd found no clue as to where Sandy was, a Kyyra messenger came to my room. I still don't

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know how he got there, but that doesn't matter. He did, and he knew where Sandy was. She had been taken to the orbiting Kyyra starship and was being held there—as a hostage."

"*What?*" Sandy gasped incredulously.

"A hostage," Clark repeated. "To force us to make a decision."

"But that's ridiculous!" Sandy protested. "I was there of my own free will. I'd been asking Beldan to take me for a long time and he finally agreed."

"You *went* of your own free will," Clark corrected. "How you came back—if at all—was apparently not up to you. I thought it sounded ridiculous too, or at least out of character. But the messenger knew enough about you to convince me he wasn't bluffing. And he stated in no uncertain terms that you would be returned to us, alive and unhurt, if and only if I gave an immediate definite answer. To start the Earth on its way, or go away and forget about it."

"And?"

"I told them to go ahead. They were all prepared, ready to start as soon as they got the word. As you all know from the talks, all the driving reactions feed on the planet's own substance. There is no need for time-consuming preliminaries like construction of special engines. They simply start the induced annihilation process at a point on the Earth's surface and then remote-control its progress as it gnaws its way into the interior. During the night, a fleet of camouflaged Kyyra engineer ships moved in to Antarctica and lit the match." He paused, looking around the room and soberly studying the others' reactions. All of them were stunned, but Sandy had an additional reason. And Sanchez seemed utterly incredulous. "We have to expect some quake activity at the beginning," Clark explained. "It will pass. But the force is being applied first at the south pole; it has to be transmitted to the rest of the planet through its body. They're keeping it gentle at first, to minimize the damage. But there will be some, inevitably."

"And you denied that you were a megalomaniac," Sanchez said tightly. "I can't believe this . . ." He turned, glaring at Beldan, and bellowed, "I demand that you stop this while there's still time!"

"I'm afraid there isn't still time," Beldan said levelly. "The reaction can be controlled, as a propulsion source. But there is no way we could stop it at this point. Not until after the planet was thoroughly removed from its orbit—and by that time it would do nearly as much damage to bring it back as to proceed."

Sanchez continued to glare with intense hatred, hissing through his teeth, not even attempting words. And Clark saw that Sandy was staring alternately at himself and at

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Beldan, her face so unreadable that he suspected even she wasn't sure what her feelings were.

She settled her gaze on him. "I can't believe it either," she said. "Do you seriously mean to say you'd let the fate of the whole planet be decided just because I was being held hostage?"

"Don't flatter yourself," Clark snapped. Then he caught himself and said more calmly, "Sorry, Sandy, I didn't mean that the way it sounded. Of course I wouldn't, and I didn't. That's why their whole pressure-by-kidnapping scheme was so inept it was laughable. Anybody who'd think I'd sell out a planet for one person, no matter who . . ." He shook his head in renewed amazement at the absurdity of it. "I'd already made my decision. I had a lot of time to think in the hospital—and after Beldan disappeared. I gradually reached the decision that if I ever got the chance again, I would do everything I could to see that we didn't pass up the offer. Something Joe said yesterday really drove home to me how close we'd come to completely losing it. Then your ransom message came . . ." He smiled ironically. "If they wanted to think I gave in because of you, that was O.K. with me. Of course, the fact that they tried such a stunt, and were willing to act on an answer from me alone, made it clearer than ever to me that they did have powerful reasons of their own for wanting us to go. But I'd passed the point of caring what they were—anyway caring enough to make finding out a precondition for accepting. Now"—he nodded at Beldan—"I understand."

Sandy looked at him for a couple of seconds after he finished, saying nothing. Then she turned to Beldan. "And you," she said quietly. "What if he'd said no? Would you really have kept me out there? Or—"

"Of course not." Beldan hesitated not at all; there was even a suggestion of haste in his reply. Then he, too, managed an ironic smile. "I could never have considered such a thing, Sandy. But we had achieved so little by straightforward means that it seemed time to try the ways of your people. Even if we were just bluffing, and even if we lacked what it took to bluff convincingly. As Mr. Clark said, we were very inept." He ventured a chuckle. "But it's the thought that counts, I have sometimes heard while visiting here. And in the end, it seems, it even worked."

"Don't be so sure of that!" Sanchez snapped. "We haven't agreed to help you. Caesar Clark can't commit us to *that.*"

No, Clark thought grimly, *but when the time comes, if we choose not to and they've learned enough of human guile, they have quite an ax to hold over our heads. Because only they can control the reaction that's*

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eating our planet away to get us there. But of course he said nothing of that.

Sanchez addressed him directly, bitterly sarcastic. "Hail, Caesar! When you were deciding what to do with the world, did it ever occur to you to think about anybody who's alive *now?* People are dying, right now. People who never heard of Henry Clark or Kyyra or Seyfert galaxies and could have lived out their lives happily keeping it that way. What about them? Eh, Henry? How can you live with yourself?"

Clark winced. His former counselor's words struck a responsive chord, already fatigued and aching. He shut his eyes in almost unbearable pain and thought about it . . .

Ramón de León trudged up the steep slope above the village under a sky delicately feathered with cirrus clouds, his dog at his heels and his heavy staff acting as a strong third leg. It was not every day that he let the sun rise so high in the sky before he went to work, but it was not every day that he celebrated his ninetieth birthday, either. Not that ninety was surprisingly old, in Vilcabamba, but it was enough to be a source of some pride. And there was always his hundredth to look forward to. His stride was still strong, and his breathing still easy in the high Andean air that was the only kind he had ever known. He did not feel guilty about taking an extra hour this morning to bask in the admiration and congratulations of his children and grandchildren.

When he reached the edge of the adobe field, he paused for a moment to lean on his staff and look down on his village, nestled in the valley below. He felt good, standing there with the brisk wind whistling through his beard and making his shirt flap around him. The village was small, but he could imagine no reason to leave it. And it was prospering and growing, in its modest way. There were enough tile-roofed houses there to hold all its people now, but there was enough demand for new ones so that there was a real need for the adobe Ramón would make today.

He allowed himself one smile of contentment and then stepped off the solid turf into the soft, cool mud. He always liked the feel of it on his bare feet, especially when he first stepped in in the morning. But this morning, in midstride, the mountains around him suddenly heaved as if struck a gigantic blow. Ramón lurched sideways. The one foot that was already planted slid from under him and he stretched full-length in the mud, half-buried and unable to get up. He managed to call out weakly for help, even though there was no one around to hear.

Then he looked up and saw the boulders hurtling down the slope above him. They would be here in seconds.

The coyote had no name, in hu-

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man terms, but he knew who he was. And he had had a good night's hunt and his belly was full. So, although the sky over the desert was still deep black and full of stars, he started home, contented and moving without hurry. By the time he reached his den, a hollow under a pile of boulders near the big saguaro with the broken arm, the eastern horizon had started to glow softly in anticipation of sunrise. He crept into the den, sniffed around to make sure there were no unwelcome intruders, and then curled up to sleep.

He awoke suddenly, only moments later, his ears cocked and a sense of danger pulsing through his whole being. The ground was vibrating under him, and the rocks that walled his den chattered against each other. Some of them, more loosely piled than others, slid over each other with a scraping noise . . .

Bewildered but equipped with an instinct that told him what to do, the coyote sprang to his feet and bounded out the front door. The collapsing pile of rocks grazed his tail, but did no real damage. He ran thirty yards and stopped, shaking like the earth beneath his feet, to look back. The rock noises had stopped, but his den was no more, and the shaking continued against his paws. The immediate danger seemed to have passed, but he had never experienced anything like that shaking before and would fear as long as he didn't know what it meant.

Meanwhile, the eastern sky was definitely brightening and the stars were beginning to fade. Soon the sun would take over the desert. Not scorchingly, as in summer, but the instinct that brought pain with the loss of his accustomed shelter knew no calendar.

He lifted his head to the stars and howled plaintively.

Kiroa Wells, not quite two years old, did not know that New Zealand lies on a belt that is more than commonly vulnerable to seismic disturbances. She knew only that it was the middle of a summer night and her crib was shaking violently and she didn't like it. So she cried out in pure terror, and kept at it until her Maori mother came into the room, staggering as Kiroa had sometimes seen people do when they came out of the saloon down at the corner.

Her mother snatched her up and held her tightly, only seconds before a big piece of plaster dropped from the ceiling to shatter where Kiroa had lain. Making quiet, cooing sounds to try to soothe Kiroa, her mother tried to run. But the floor kept lurching beneath her feet so that Kiroa had the sensation of being batted roughly from side to side.

They made it outside, where it was warm and dark and here and there stars peeked through broken, blowing clouds. The ground shook outside just as the floor had in the house, and some of the houses they

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passed had broken windows and collapsed roofs. Hurrying through the churning streets—Kiroa had no idea where they were headed—they occasionally saw other people, shouting or crying. They saw two lying very still at the edge of the street and Kiroa wondered why. She had never seen anybody lying out on the ground like that before.

As they passed the saloon at the corner, it made cracking noises that swelled suddenly to something like thunder. Kiroa's mother screamed, glanced to her right, and tried awkwardly to shift Kiroa to her left arm and turn away from the building. But the first falling bricks and glass hit her then and she lost her grip. Kiroa flew out of her arms and landed painfully on the hard ground.

She cried for a long time after the rumble ended, but her mother didn't come. Finally she could cry no longer, and she crawled toward where the saloon had been. The world was no longer shaking and it was very quiet, except for a few distant human moans and a roar as of rushing water from somewhere over toward the harbor.

Kiroa found a hand sticking up out of the pile of rubble. "Mommy?" she said hopefully. But there was no answer, and the hand, when she touched it, was limp and unresponsive. "Mommy . . . ?"

Clark opened his eyes slowly and looked at Sanchez. "How can I live with myself?" he repeated quietly. "In one sense, I can't. Because you're quite right that the trip isn't going to be made without pain—and so far, at least, others have felt it far more than I have.

"But in another sense, today I *can* live with myself—for the first time in my life. I've always had a streak of Hamlet in me, and it's always bothered me. Decisions came hard, and the more important they were, the more reluctant I was to make them. It's been especially bad since my wife died two years ago, and getting worse all the time. Especially since this business came up. And then I found that nobody else could make a decision either—but somebody had to. And there weren't any *right* choices—only ones that were unpleasant in different ways and to different degrees." He almost closed his eyes again, but that made the images too vivid. "An important decision, everybody reluctant to make it, and no right choices. So when Sanchez' triggerman gave me some time to think, I finally realized that somebody had to work up the courage to make the least wrong one. And if I didn't do it myself . . ."

He smiled thinly. "I think I have done it. Yes, Joe, my conscience bothers me. I don't expect it to ever stop. But I finally realized that the only way enough people would—might—get together to do what had to be done was if they were already and irrevocably committed to a course of action. The

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danger would have to be immediate, not distant and debatable. So I committed us. Now if enough of us get on the ball soon enough, most of us should make it.

"I knew very well that as far as my conscience was concerned, I'd be damned if I did and damned if I didn't. So I did—and *that's* what I'll have to live with." He stood up suddenly and extended his good hand to Beldan. "So it's done," he said loudly. "We're all in this together. May we all survive."

Beldan hesitated a moment, then reached out to take Clark's hand. He touched it briefly, then turned silently and left the room. Sandy and Jonel followed him, slowly, their arms locked tightly around each other's waists. Clark caught a glimpse of their faces as they left, and he thought they understood, at least a little. He hoped so, anyway.

He didn't look back at Sanchez as he turned to face the wall, and Sanchez troubled him with no more words. Clark stood very much alone as he opened the blind on the window behind the desk and stared out. He thought—he hoped—that he had done his part; from here on out it was up to others. It didn't show yet—it would take hours or days to become obvious, he knew—but the sun had begun to set for its last time in these skies.

In the south. And after that, things would never be the same again.

But at least they could *be.* ■

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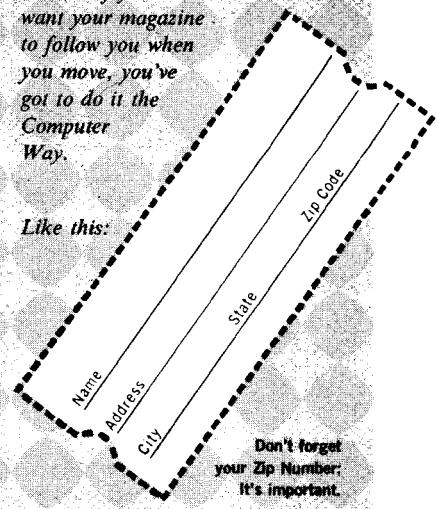

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P. SCHUYLER MILLER

THE BOOK OF TIPTREE

DAW Books, the publishing firm that Donald Wollheim started after he left Ace, has been bringing out a series of one-man "Book of" collections. I hope you haven't waited for my nudging to pick them up, because they are shaping up into a Hall of Fame of present SF writers—Van Vogt, Aldiss, Herbert, Dick, Dickson, Farmer, and more to come.

A writer who hasn't yet been drawn into the DAW net is James Tiptree, Jr. Ace did get him, and they call his first collection of short fiction "Ten Thousand Light-Years from Home" (Ace No. 80180; 319 pp.; 95 cents). Only one of the fifteen stories—"Birth of a Salesman"—was published in Analog, but that's all the more reason you should acquaint yourself with one of the finest talents to appear in the field in some time.

Tiptree is apparently a lineal descendant of the Sumerian who discovered that that same old barley mush would make beer as well as bread. He uses plots, themes and formulas that the critics have assured us were given the *coup de grace* by Doc Smith and converted them into dazzling new science fiction—"hard" SF, farcical SF, moving SF, whatever kind of SF amuses him at the moment. At the same time, perhaps with tongue in cheek, he concocts titles that are part in the current "in" wave in literature—the wave that produces films with titles like "I Could Never Have Sex with Any Man Who Has So Little Regard for My Husband." Is he riding the wave? Is he ridiculing it with titles like "And I Awoke and Found Me Here on the Cold Hill's Side" or "I'll Be Waiting for You When the Swimming Pool is Empty"? Tiptree knows. And maybe the Shadow.

"Birth of a Salesman" is one of four farces which may owe something to their author's reputed association with the Pentagon. Their message—and they have one—is that however confused your personal corner of bureaucracy may be, you ain't seen nothin' yet. What's worse, when you look past the stage business, is that the snafu is logical. In "Salesman," the unbelievable complexity of interstellar export. In "Faithful to Thee, Terra, in Our Fashion," the axiom that all's fair in war and sport. (I read it in the week of the Soapbox Derby scandal, the two-million-dollar harness racing fix in New York, and the complaints that Taiwanese

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Little Leaguers are just too damn big, or good, or anyway un-American.) And in two stories, one Max, a CIA agent (and a rather perceptive one) copes with galactic invasion—in "Mama Come Home," by raunchy giantesses from Capella, come to Earth on a slaving raid, and in "Help" by huge blue dinosaurs and little butter-colored missionaries in a used spaceship.

If you're thinking of Ron Goulart, think again. Goulart's point is that the universe makes no sense. Tiptree's is that it does—if you can see it.

About as different as they can get are the "straight" or "hard" SF stories. They're the ones I starred when I took notes.

"The Snows Are Melted, the Snows Are Gone," takes us into a post-holocaust world in which defective but intelligent mutants must send their girls—and wolves—out to seduce sound genes among the barbarians. "The Peacefulness of Vivyan" takes us to a seaworld and a pitiful programmed "traitor." "Painwise" explores another aspect of official pragmatism—a man sent out to explore other worlds after he has been revised so that pain isn't pain. "Mother in the Sky with Diamonds," the first Tiptree I ever read, which packs all the clichés—asteroid miners, drug peddlers, corporate inhumanity, a great lost ship from ancient times, and more—plus some ingenious biological architecture, into a completely believable story. "The Man Who Walked Home"—through time (which I've described here before). And "Forever to a Hudson Bay Blanket," which gives the time-travel formula another twist and comes out with a kind of Möbius strip that is a love story, a tragedy—who knows what-all?

You may have picked up the feeling that these are not just gimmick and gadget stories, ingenious as some of them are. Hobie, in "Beam Us Home," is a boy whom Earth and people rejected, but whom Space accepted. The mutant girl in "Snows" . . . the old woman in "Mother in the Sky" . . . the spoiled teen-ager in "Hudson Bay Blanket" . . . Tillie in "Mama Come Home" . . . poor, despised Vivyan—they're all people clubbed by their world. And so is the red-haired man in "Cold Hill's Side," with its savage message that "Man is exogamous."

I have a few stories left that are so-so, and one that I should have included with the comedies—"When the Swimming Pool is Empty." It's a ruthless lampoon of war and orgies and do-gooders, but it's also a little lesson in cultural diffusion and a warning against starting something you can't stop. "I'm Too Big But I Love to Play" is a slight thing about the space-thing (really only an organized drift of plasma) who tries to play with the little people on Earth. "The Man Doors Said Hello To" has to be fantasy—somewhere between Pangborn and Lafferty in mood.

And there you have it—the first "Book of Tiptree." Why it isn't in hard covers, I'll never know, but even if you're the fussiest of collectors, don't let that stop you. Get it.

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JOHN W. CAMPBELL ANTHOLOGY

Doubleday & Co., Garden City, N.Y. • 1973 • 528 pp. • $9.95

When John Campbell began to write science fiction, space opera had just been invented. For very young newcomers to this intricate field, I suppose I should point out that the term practically coined itself, although "Doc" E.E. Smith put it into orbit with his "Skylark of Space" stories. It was and is a parallel to "horse opera," the affectionately contemptuous tag attached to Western stories, and based in turn on the traditional bombast and melodrama of the typical grand opera libretto sans music.

Doc Smith, and others who spotted a good bandwagon and jumped on, were known to invent "scientific" phenomena and effects to fit their otherwise inspired librettos. As Isaac Asimov and Lester del Rey point out in their special introductions to this book, John—still in college—did it a little differently. Where others concocted phony science, John extended and extrapolated the concepts and conjectures of the physics and chemistry of the day. If Maxwell could have his demon to thumb its nose at the second law of thermodynamics, John could have his drive.

Collected here are the "Arcot, Wade and Morey" yarns. A carper might dub them "Tom Swift Around the Universe," for that is really their formula. For Tom, take inventor Richard Arcot, son of tycoon Robert Arcot. For Ned Newton, substitute his buddy, Robert Morey. For your choice of Tom Swift's adversaries (I don't remember the books all that well, though they were my first science fiction), take the pirate, Wade. But here he began to rewrite the formula. The concept of crime as insanity was big in psychology and sociology in those days—it still is—so Wade was caught, cured, and joined the team. It's as though that thorn in the Swift/Newton flesh—Andy Folger, wasn't it?—had seen the error in his ways at the end of the first book.

The omnibus contains the two novels published by Fantasy Press in the early 1950's, "The Black Star Passes" and "Islands of Space," and the final episode, "Invaders from the Infinite," with which Gnome Press followed up in 1961. Any stereotypes of space opera that Doc Smith had overlooked, John Campbell invented—and made believable. The trio invent everything they need on Wednesday and have it ready to use early Friday morning: they have to, or a planet will be destroyed, a sun blow up, or some equally hazardous event will come to pass. Heroes *do* things; they succeed; they're winners, not losers. The universe is their apple, and they like cider. Worms, get out or get squoze.

Let me quote what Isaac Asimov says: "Shining through all the flaws is the working of a brilliant imagination, together with a drive and enthusiasm that carries the reader along despite himself."

And Lester del Rey: "No man ever told us that the limits of our ability were the limits of our imagination more eloquently."

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And John Campbell himself, in 1953, when the first book came out: "These early science fiction tales explored the Universe; they were probings, speculations, as to where we *could* go. What we *could* do." That is really John's definition of science fiction. See for yourself how he practiced what he preached for so long.

Statement required by the Act of August 12, 1970; section 3685, Title 39, United States Code showing the Ownership, Management and Circulation of Analog Science Fiction—Science Fact, published monthly, for October 1, 1973.

1. Location of known office of Publication is 350 Madison Avenue, New York, New York 10017.

2. Location of the Headquarters or General Business Offices of the Publishers is 350 Madison Avenue, New York, New York, 10017.

3. The names and addresses of the publisher, editor, and managing editor are: Publisher, None; Editor, Ben Bova, 350 Madison Avenue, New York, N.Y. 10017, Managing Editor, None.

4. The owner is: The Condé Nast Publications Inc., 350 Madison Avenue, New York, New York, 10017. Stockholder: Through Intermediate corporations to Advance Publications, Inc., S. I. Newhouse, sole voting stockholder.

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(signed) Harold G. Meyer, Vice President of Owner

7. Extent and Nature of Circulation

	Average No. Copies each issue during preceding 12 months	Single issue nearest to filing date
A. Total No. copies printed	175,417	176,426
B. Paid Circulation		
1. Sales through Dealers and Carriers, Street Vendors and Counter Sales	70,750	70,000
2. Mail Subscriptions	45,771	46,700
C. Total Paid Circulation	116,521	116,700
D. Free Distribution by Mail, Carrier or Other Means		
1. Samples, Complimentary, and Other Free Copies	953	860
2. Copies Distributed to News Agents, but not sold	56,333	58,000
E. Total Distribution	173,807	175,560
F. Office use, left-over, unaccounted, spoiled after printing	1,610	866
G. Total	175,417	176,426

I certify that the statements made by me above are correct and complete.

(signed) Harold G. Meyer, Vice President of Owner

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DEATH CELL
by Ron Goulart • Beagle Books, New York • No. 95111 • 153 pp. • 95¢

SHAGGY PLANET
by Ron Goulart • Lancer Books, New York • No. 75420 • 175 pp. • 95¢

A TALENT FOR THE INVISIBLE
by Ron Goulart • DAW Books, New York • No. 37 • 144 pp. • 95¢

On the cover of "Shaggy Planet" I am quoted as calling Ron Goulart "the Mack Sennett of science fiction." And so he is, never more so than in these three zany frolics.

The first two books are further chapters in the chronicle of Murdstone, that troublesome world in the Barnum system where somebody is doing somebody else dirt in the most unlikely way possible, every minute of every day of every year. (I think Murdstone has years, but it may not have discovered them yet.)

In "Death Cell," our nominal hero is Jack Summer, dirt-digging star of *Muckrake*, duly assisted from time to time by that raunchy photographer, Palma. He becomes involved with such as Sergeant Alicia Merdinola of the Galactic Social Welfare Patrol, members of Cops Emeritus (former police dismissed because of excessive brutality, accepting bribes, and similar frame-ups), the hybrid men/mechanisms known as "bozos," various legitimate (and I suppose illegitimate) robots, the Reverend "Lucky Legs" O'Hogan of the First Athletic Church, Barnum's Political Espionage Office, sudden suicide, secret weapons, war, revolution . . . get the idea? *National Lampoon* should have a Murdstone issue!

The handsome cover of "Shaggy Planet" bears practically no relationship to the contents of the book. The borzoi is not even remotely like the hummels that are overrunning another corner of Murdstone when secret agent Peter Torres goes there to locate a vanished diplomat. The statuesque blonde posed behind the pooch is nothing like the hummel-fancier Torres encounters. Pete's investigation is enlivened by such things as official assassins, robot Campus Cops, cannibalistic hippies, a living doll named Peggy Freed who is a feminine (very) counterpart of *Muckrake*'s Summer, and, of course, the hummels.

The third book belongs in a different series. The place is Earth; the time is A.D. 2020, somewhat before the time described in some of Goulart's other yarns, when things fell apart. They're crumbling; no question of that. But they are still glued and sewed and bandaged together by such as the U.S. Remedial Functions Agency, its Wild Talents Division, and agent Jack Conger who can make himself invisible when the occasion warrants. And it warrants! (It was good enough for H.G. Wells. What makes you so crabby?)

You get the picture, I hope. Slapstick satire. Parody. Burlesque. Nothing sacred. Cheeks full of tongues.

In short, Mack Sennett.

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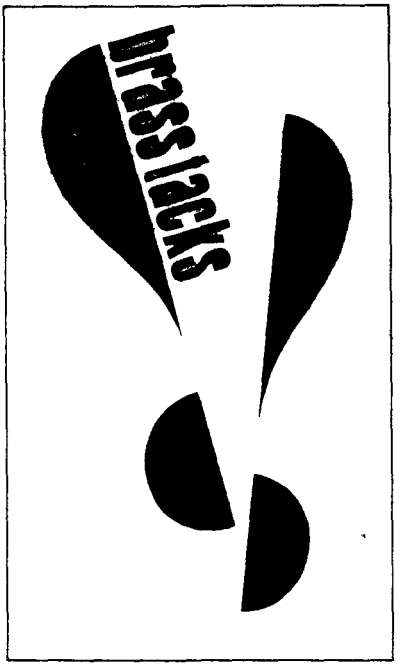

As we expected, there was a heavy response to the letters in our October issue by Poul Anderson and Harry Harrison, concerning the John W. Campbell Memorial Award for best science-fiction novel of the year.

Dear Ben:

Poul Anderson brings up an interesting point, although perhaps too strongly. It's my firm belief that any literary prize is of necessity against the basic spirit of literature—it singles one out of the many, establishes a personal viewpoint, and promulgates the belief that an absolute criterion exists in art. No set of judges will admit to this—but look at how any such prize is used, in advertising or otherwise, and the image of Olympian heights and achievements is unavoidable. In short, such prizes are dangerous, fun, much in demand, ridiculous, and necessary to the growth of Western-style literature. (Unless we all acknowledge that the saving grace of any art-form is not just excellence, but bulk and variety, to give us the *choice* of what will receive our personal praise.)

The John W. Campbell Memorial Award, by long tradition, blasphemes its namesake. Would Hugo Gernsback have bought "Stranger in a Strange Land" for *his* publications? I think not—so only with unspecific, Nebulous titles for awards can some friction be avoided.

But I am irked at the judges of the Campbell Memorial, too, for what amounts to bigotry or lack of thought, I'm not sure which. What do they *mean*, "realistic recognition of man's fallen state, a requirement of good literature"? The *only* requirement of good literature is a conscientious, interested and aware author, willing to put part of his life into recording his observations and ideas (or conceits, if you will), and a reader or two willing to extract entertainment, wonder and a new viewpoint in exchange for some hours of his *life*. No other requirement is needed!

I seriously doubt that man has fallen from any pristine condition to what he is now. If I write about man as a creature rising, not falling, is my work unrealistic and unliterary? Or do we all have to mudge around in the naïveté of

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Rousseau for a few more decades—for Rousseau is the ultimate endpoint of thinking about man as a fallen beast. I don't believe in savages being any nobler than I am, just by being more savage . . .

Barry Malzberg's works are excellent, and if not enjoyable at least admirable. They must have been difficult and painful to write (that is, the author was interested, not just in it for the money or some other petty reward) and their honesty shows a certain conscientiousness. I don't mind in the least that Campbell, grand old brick that he was (and father to many of us), would have disapproved. What I do mind is forcing a certain point of view onto literature, especially one so repugnant and unrealistic as The Fall.

Man has *not* fallen from grace. It is with him wherever he goes, but the poor bastard is generally too blind to see it.

GREG BEAR

4966 Old Cliffs Road
San Diego, California 92120

Dear Ben:

In comment on letters by Poul Anderson and Harry Harrison concerning the Campbell Award, I would like to point out that the answer to the problem is reasonable and quite straightforward. The Hugo no longer stands for its namesake's kind of fiction, if it ever did, and no one grumbles about that.

In time I think the JWC Award will come to be the same kind of award for excellence. Certainly the Analog Best New Writer Award will not be limited to Analog writers either.

At first I reacted as Poul did, but I have come to see the error of such a response; it is inappropriate to hold a doctrinal position. It is wrong and ungracious.

No one can speak for John Campbell—not even Ben Bova. The extrapolation of JWC's views is a logically dubious procedure, especially after his death. It was difficult when he was alive.

Campbell's name is not to be honored only by those who shared his views. Honor is apart from agreement. It is given freely, and from all quarters.

My own original reaction, and Poul's, is of the kind taken without reasoning or argument, or attention to complexity. Later, I'm sure, the rational view will prevail.

I should point out, however, and as Ben notes, that a purely Campbellian award might have been established. In that case someone would have had to do *the best possible job* of picking the kind of work JWC would have published. And they would never know for sure when they were right or wrong.

And dissent would reign forever even within the ranks of JWC's supporters.

There really is no problem if we consider the case logically and rationally, and with some attention to what honoring someone *means.*

GEORGE ZEBROWSKI

Dear Ben:

Years ago, when I performed in amateur nights at rural theaters, ev-

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ery once in a while there would be some poor soul—usually the chubby son or daughter of a local dignitary—who got up and performed so badly, so ineptly, so amateurishly, that it made me wince. I'm sure you know the feeling: I wish I wasn't seeing this.

That is precisely the way I feel about Poul Anderson's letter in the October Analog. In the over twenty years I've known Poul, and have admired him, no matter how staunchly he defended opposing views of writing, politics or life in general, I never felt anything less than admiration and affection for him as human being and as writer. Poul has always been to me a model of decency, kindness and ethical behavior.

Which is the reason I find his letter so terribly disturbing. I wish I had never read it. I wish he had never written it.

Despite the support I'm sure Poul's position will garner from Analog readers, it is a most unpleasant, unwarranted and sad-making opinion to see in print.

Not only because it visits on Barry Malzberg a load of lousy karma he doesn't deserve, didn't contract for, and should not have to suffer . . . but because it is a paranoid, tunnel-visioned view that Poul should know better than to air openly.

To say Malzberg should not have won the Campbell award because John would never have published such a novel, is the equivalent of saying the John Ford Directorial Award should not be conferred on any but directors of Westerns. Clearly, Poul is wrong, and the judges made a judgment that they must have known would bring down wrath on their heads. That they made the award as they did, knowing in front it would cause shrieks from the conservative elements, is ample proof to me that "Beyond Apollo" was simply too good to be ignored.

John always plumped for open forums, for new directions, for testing the unknown. To say the award was anything less than nobly and correctly proffered is to stain John's memory. It is my sad feeling that Poul has done John the disservice; not the judges who considered all the novels eligible and picked the one *they*—not Poul—thought was the best.

And, incidentally, apart from "The Listeners" and "What Entropy Means to Me"—both of which Poul puts down in the same way he puts down "Beyond Apollo"—what else was there published in 1972 that even remotely approaches Malzberg's brilliant *tour de force?*

I think the judges did what had to be done, with clean hands and composure, to keep this award from going the way of the Hugos and Nebulas, both of which are little better than popularity contest prizes.

HARLAN ELLISON

Dear Mr. Bova:

The noteworthy exchange of letters between Poul Anderson and Harry Harrison anent the John W. Campbell Award should not suffer an abrupt termination. It is fair to

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say that the late Mr. Campbell not only rode the crest but created the wave, and an explication of his views by his intimates, who are also distinguished in the same field, would constitute a valuable contribution.

Mr. Anderson is *"plus royaliste que le roi,"* but this is a desideratum provided that, in this adversary proceeding, the converse is also diligently put. Mr. Harrison is the (somewhat baffled) peace maker.

The former describes the winning entry, Barry Malzberg's "Beyond Apollo," as "gloomy, involuted, and technophobic." Accepting this as a protasis it is a reasonable conclusion that Mr. Campbell advocated the cheerful, the simple and the technophilic. Moreover, Mr. Campbell was antipathetic to such things as "man's fallen state" and "the human condition," according to Mr. Anderson, as well as being an antiacademic. Perhaps all of this is true, as it very well could be, but it does not add up to a particularly inviting view of Mr. Campbell's posture and beliefs.

Mr. Anderson's views are imbued with a peculiar prestige, and it seems little short of unpleasant that this version of an eminent pioneer's contribution should be left in a sorry state, as inferences from his letter appear to place them, though certainly not by intent. Mr. Campbell's mentality was not that of the minute and mincing mind, but rather of ample quality, and outreaching. It is therefore with some difficulty that one would accept as valid an accusation of his being antiacademic, if "academic" is to apply to those in the collegiate profession.

ALEXANDER DONIPHAN WALLACE
306 East Gatehouse Drive, Apt. H
Metairie, Louisiana 70001

Dear Mr. Bova:

Concerning Poul Anderson's criticism of the John W. Campbell Memorial Award judges, an observation: heroism! That's the issue behind the proper use or misuse of Campbell's name on the award. Anderson rightly takes the judges to task for giving the JWC award to any work of fiction that supposedly depicts man with a "realistic recognition of man's fallen state, a requirement of good literature." But I think Anderson is overly charitable in regarding the idea of Fallen State as "another of those semantically empty academic chant phrases," because it isn't empty by any means. It is quite meaningful. It is an attitude essentially antiheroic, or at best, nonheroic. It is something opposed to the spirit of John Campbell.

Campbell's kind of SF presents a view of man wherein thinking men can actually accomplish things, by God! The Campbellian man doesn't fall from the grace his own intelligence determines. Whether that type of fiction is called Old Wave, New Wave, or High/Low Tide is of little consequence—it's heroic fiction. An award named in honor of an opinionated individual implies a standard of judgment in rapport with the opinions of the man for which the award is created. To give the JWC award to fiction not in the JWC school is

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equivalent to giving a Western a Mystery award (no cracks about Mystery-Westerns, please), or a socialist treatise an Ayn Rand award, or Harlan Ellison a Hugo for his unpublished works (I shouldn't have suggested that last one). I congratulate Anderson on his decision to withhold his work from consideration for the prize in question . . . for the time being.

BRAD LINAWEAVER
Box U-0921
Tallahassee, Florida 32306

Dear Mr. Bova:

I was amazed to read Poul Anderson's letter in your October Brass Tacks; amazed because it was almost an exact expression of my own feelings. While I have never written a letter such as this before, I have read and studied science fiction for almost fifteen years. I even teach classes in SF, albeit only on the high-school level, so I guess I'm not a literary "expert."

I can't quibble with what Mr. Harrison says about the objectives of the John W. Campbell Award, but I feel he has missed the point of Mr. Anderson's letter. To give "Beyond Apollo" a John W. Campbell Award is about as ludicrous as presenting Richard Nixon the Franklin D. Roosevelt Award for Liberal Government. (Which, by the way, is not meant as a slur on either man; both will go down in history as strong Presidents who accomplished much. Ah, but there *is* a difference!)

Your comment in response to Mr. Anderson's letter is obviously valid in stating that *all* types of SF novels should be considered for such an award. Yet one look at the runners-up for the JWC Award seems to show that this was not the case. All the novels listed there are what are best described as New Wave: downbeat, frequently experimental or antitechnological, sometimes even semipornographic. I'm not questioning the literary value of these works, only that they are certainly not representative of the totality of science fiction.

A novel such as Gordon Dickson's "The Far Call" would, I think, meet almost any criteria for good literature, yet it is a completely different breed from the novels I have seen listed as candidates for the JWC Award last year. Would it have a chance of winning that award, or would any other fine SF novel which is not New Wave? On the evidence I've seen so far, I doubt it.

You will probably not receive many letters supporting Mr. Anderson's stand. It is always difficult to try to buck the cultural and literary "experts." Yet this is a stand which must have taken considerable courage, and I can only commend him for it. I have always admired Mr. Anderson's writing. Now I must also admire him as a human being.

EDWARD L. LESAOUT
1310 Albright Avenue
Upland, California 91786

The Editor gets the final word! I suspect that John Campbell would not have voted for "Beyond Apollo" as the best science-fiction novel of the year . . . but he would have defended with every ounce of his

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strength the right of the committee to make its own free choice.

Dear Mr. Bova:

In reference to your editorial, "The H_2indenburg Society," and the article of the same issue (September), "The Case for the Hydrogen-Oxygen Car," I would submit the following comments.

The significant point of the H_2O* car article is that H_2O* is an energy delivery system. I grant that H_2O* or H_2 is an efficient energy delivery system, but a lack of delivery systems is not our problem. Lack of *fuel* is our problem, and H_2, when produced from water, is *not* a fuel. Any substance which requires more energy to produce than it produces is not a fuel.

To put it another way, if we could convert all of our cars to the Hydrogen Economy tomorrow, we would somehow have to supply to our H_2O* electrolysis plants all of the energy, petroleum or otherwise, with which we now power our cars. This would require approximately two or three times the electrical power we now generate for all other uses. Even atomic power is not going to bridge this kind of gap any time soon.

Of course, if the H_2 were to be extracted from coal or any source that would yield a net energy gain, my objection would be invalid.

In the meanwhile, and with all due respect, I wouldn't stockpile any "H_2indenburg Society" buttons if I were you.

BENNIE B. GREZLIK
4834 First Street
Pasadena, Texas 77504

The basic problem is that we've been riding along for centuries on nature's "free gift" of fossil fuels—coal, oil, and gas that took millions of years to form. We've just about used them up. Now we must find new fuels, and hydrogen is a strong candidate. If we could use electrical energy directly to power automobiles and other vehicles—fine, we wouldn't need hydrogen. But the battery-powered auto is not yet in sight. So we must consider using nuclear electricity to produce hydrogen to replace our disappearing fossil fuels.

Dear Mr. Bova:

After more than thirty years without missing a single issue of Astounding/Analog, the September 1973 issue must rate as one of the most provocative (irritating?) in its nonfiction content.

With grandiloquence your editorial announces that the world must change, and immediately attempts to parlay a gnat to the mass of an elephant. The trick is not to substitute fuels, but to reduce energy requirements, for thermal pollution remains with us as much as before. And that is the one form of pollution that defies recycling for sure . . .

Reducing our energy requirements without imposing rationing will not be achieved by some grandiose act. It will result from the intelligent application of our awareness and wills to all aspects of our daily lives. One avenue is to avoid the manufacture and maintenance of such products as we can dispense with.

A prime candidate for this ap-

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proach is the adoption of nudity in domestic and recreational environments. It entirely removes the problem of what to do with R. H. Shannon's daughters' unmentionables. It would reduce our high energy consumption in air-conditioners. And so on. Try it.

H. D. Baecker
Canadian Naturist Facilities Ltd.
P.O. Box 1343
Calgary, Alberta T2P 2L2

Fine. But there might be a few residents of Alberta, for example, who'll want parkas and mukluks for at least part of the year. It would be fine if we could (or would) decrease our energy consumption. But the chances are that we won't—unless forced to by a catastrophe. Better to find other sources of energy, and ways to use that so-called "thermal pollution," which is really a valuable resource in itself.

Dear Mr. Bova:

Mr. Escher's provocative article shows that hydrogen can be a more efficient substitute for gasoline, but I am afraid you're wrong in regarding it as a possible solution for the entire Energy Crisis. Heavens, no! Hydrogen is *not* common, and to manufacture it from water requires *more* energy than it releases when it's burned! That energy must come from somewhere else, such as electricity, and for applications that just use electricity, why waste some in making the hydrogen, and more in its burning to generate electricity?

But applications that wastefully use *non*electrical energy (prime example: the present-day internal combustion engine) might be able to save with hydrogen. A most efficient central power plant's electrolyzation of water, linked with hydrogen's more efficient combustion would *still* waste less than a myriad of inefficient, polluting cars. Added dividends would result because it is far easier to have effective antipollution controls on one big plant than on those cars . . . and the plant can burn coal, which is far more abundant than oil, so it would last until we achieve controlled fusion.

While we're talking about energy resources, what about radioactive wastes? They've still got a great deal of energy leaking out. I know of only a few radioisotope energy uses. In solution or suspension, their radiation might even split water molecules for free! (Of course, we'd have to then separate the oxygen and hydrogen . . .)

Ernie Clark
119 Larry Drive
Knoxville, Tennessee 37920

The Hydrogen Economy concept envisions nuclear power plants that simultaneously desalt water for drinking and electrolyze water for its hydrogen-oxygen fuel content. The power plants can operate efficiently at a level load twenty-four hours per day, rather than react to peak demand loads by consumers. The hydrogen is then used as a fuel for transportation, industry, et cetera.

And the best place for radioactive wastes is off-planet!

Dear Mr. Bova:

Please enroll me in the H_2indenburg Society, with reservations.

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I approve of gaseous hydrogen as a fuel. An article in *Scientific American* showed how it could be easily transported in our existing pipeline system. The explosion hazard is less than natural gas, owing to hydrogen's more rapid diffusion in air. And, as we do with natural gas, a sulfide could be added to give it an odor. For stationary applications it would be superb. But when you start talking about putting liquid hydrogen and liquid oxygen together in millions of passenger cars, I get the willies.

Sure, H_2O* engines carry our astronauts into orbit, but the rockets are launched over the ocean and highly qualified people take elaborate precautions. It's another thing to peddle H_2O* on every street corner, in the same quantity as gasoline. Even if tamper-proof tanks prevented Junior from quick-freezing the family cat, there would still be accidents. Of course, in any accident where both cryogenic tanks were ruptured, there wouldn't be any wreck to tow away—just a crater in the street to fill in, and a block of houses to rebuild.

In aviation (I'm a pilot), we have an axiom known as Murphy's Law. In the most general form, it states that no system can ever be made idiot-proof. There will be accidents, and all we can do is try to minimize their numbers and consequences. For this reason I oppose both the fast breeder reactor and the H_2O* engine for commercial applications. They're just not worth the risk. Even the gasoline car is hard to justify in terms of the human lives it takes.

Let's try another approach. For cars, let's supply hydrogen in chemical combination or adsorbed on a suitable substrate. We could burn it in a catalyst bed at relatively low temperatures, which would simplify the engineering and minimize the production of NO_x. The heat could power a Stirling engine. Or we could use hydrogen-air fuel cells. Both systems would produce low-powered, short-range cars which, if universally adopted, could be sociologically very advantageous.

To paraphrase J. Robert Oppenheimer, if something is technologically sweet, it will be done. Somebody will probably build and test-drive the H_2O* car, but I don't want to be anywhere in the neighborhood.

ROGER B. RENSVOLD
442 48 0958
HQ, VII Corps, 34 Sig Bn
Aviation Section
APO New York 09107

Hydrogen can be used in many ways. Coupling it to the low-noise, pollution-free Stirling engine is technically sweet indeed.

Dear Mr. Bova:

Herewith a knee-jerk response from a feminist: R. H. Shannon displays a striking ignorance of the factors which make his daughters heavy energy-consumers.

We are all products of our environment. When the American male prepares himself to go out into society, he is acceptable if he showers, shaves, uses deodorant, and dresses appropriately. He has been programmed to perform these actions with a minimum expenditure

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of time and energy. Pride in this ability is misplaced: Mr. Shannon is only fulfilling society's expectations.

And so are his daughters, however subconsciously. Like all American females, they are constantly bombarded with propaganda. It's become big business to convince women they're inadequate, then sell them products to alleviate that inadequacy. The art is in a constant state of escalation, too. Just as a woman feels she's conquered every disgusting attribute, a new product—necessitating the creation of a new phobia—hits the market . . . "Whatever happened to rouge and powder?" Max Factor, John Robert Powers, and Charles of the Ritz did. Television did. John Fairchild of *Women's Wear Daily* did. And all the men employed in the development, manufacture, and marketing of items to "improve" women did . . .

A woman has two options. She can—as most do—internalize Madison Avenue's vision of her inferiority and embark on an endless quest for the perfect shade of lipstick, the ultimate in hair removal, ad infinitum. This option consumes vast amounts of energy, her own as well as Con Edison's.

Alternatively, she can drop out of the contest. It's not easy, but it is possible to quit shaving, plucking, painting, curling, and agonizing about the elusiveness of perfection. By doing so, she may discover an immense sense of freedom. She may feel honest for the first time since puberty. She may look back in wonder on her former devotion to trivialities. Yet, she will be inescapably aware that we are all victims of the cosmetic conspiracy: few men will prefer her hairy legs to clean-shaven ones.

So, if Mr. Shannon didn't teach his daughters to be confident and proud in their natural state, how dare he mock their efforts at embellishment? He must accept partial blame for his electric bills unless he has consistently made his daughters feel attractive after only the simplest of preparations.

A final comment: Major cosmetic firms are reportedly plotting strategy to ensnare men. As an escapee, I urge you to take all possible care to avoid the trap. Being a prisoner is no fun.

KATHRYN ZELLICH
R.R. #4, Box 242
Imperial, Missouri 63052
But I don't want to grow a beard!

Dear Mr. Bova:

You enjoy unusual ideas. I have one that may amuse you. In your opinion, what single word, if eliminated from our language, would create the most consternation? My choice would be the word "no" . . . I hear it so often. I suppose "yes" could have been used as effectively . . . anything you do or say hinges on a yes or no answer.

Imagine what would happen if a team of Galactic Planetary Developers were to encounter a society that wasn't dependent on yes or no!

BOB NELSON
3325 North Lincoln Avenue
Chicago, Illinois 60657
How about the verb "to be"?

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GUEST EDITORIAL

continued from page 10

That one word is: *Don't!*

Creativity cannot be taught. One may teach grammar and composition; it is not possible to teach creative writing and any person who claims to do so is a fake. Creative artists are never taught; they invariably teach themselves. You can teach a young artist the tools of his trade; you cannot teach him to create. Nobody taught Shakespeare, or Mark Twain, or Edgar Allan Poe—or Erle Stanley Gardner or Rex Stout—and no one can teach *you.*

Science fiction—I don't write it because I am addicted to it; I am not. I've written and sold all sorts of things, technical articles, journalistic nonfiction, television scripts, detective stories, screenplays, adventure stories, even teen-age love stories told in female first person. But I usually write science fiction because it turned out that I made more money that way. I did not become a writer to see my name in print; I didn't give a hoot about that and had no literary ambitions. I was a naval officer by choice; I became a writer by economic necessity. I needed to pay off a mortgage and started writing to get the money. I was in poor health and could not handle a steady job—nor were there any jobs; I was disabled out of the Navy during the Great Depression, a time when lawyers were driving milk trucks and graduate engineers were working as janitors.

But poor health is no great handicap to a free-lance writer; he does his important work in his head and he can do that in bed. If he can sit at a typewriter a few hours a day a few weeks out of the year, that's enough. If he can get someone else to type for him, he need not get out of bed at all.

You don't have to be laid up to be a writer but a large percentage of writers *are* handicapped, and still more became writers because ill health or some other handicap cut them off from more active jobs. H.G. Wells started because pulmonary tuberculosis made him unable to continue as a teacher. Robert Louis Stevenson started out to be an engineer, then was forced into his brilliant writing career by chronic ill health. Cyrano de Bergerac—the man with the nose—is one of the many military men who turned to writing after being disabled in combat—and his novel "La Voyage à la Lune" is the first case of a science-fiction writer using rocket propulsion for a spacecraft. A man in the class of '22 was disabled out about when I was and started selling sea stories. Another one, a World War One mustang, was retired for cancer. In the five years it took him to die, he taught himself to write and sold some sixty stories, science fiction based on his naval experience. I knew a

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civil engineer who broke his back during the construction of the Golden Gate Bridge and turned to writing adventure stories after he was crippled. And a polio victim crippled in both legs and one arm—but he could turn out seventy words a minute of clean copy with two fingers of his right hand. A classmate of mine was let out as a midshipman for heart trouble—and a heart attack killed him—but in the meantime he supported himself for thirty years as a writer. Booth Tarkington dictated several of his best sellers after he was blind.

I don't think anyone knows what the percentage is of writers crowded into the trade by such causes. But being unable to work at a regular job is a great incentive in forming those habits necessary to success in writing. *It teaches one also a great respect for the reader.* The ultimate cash customer *must* be pleased, or there is no repeat trade. An author must acquire humility about this. What he has for sale is a luxury; no one has to buy it.

I think of it as competing for beer money; this keeps me steady on course. My purpose is to make what I write entertaining enough to compete with beer. Not to be as great as Shakespeare or as immortal as Homer but simply to write well enough to persuade the cash customer to spend money on one of my paperback reprints when he could spend it on beer.

I ask myself: Does this entertain *me?* Does it amuse me enough that, if I found it on a newsstand, I would be willing to pay cash to read it?

Or does it bore me?

If it bores me, I don't write it.

But what *you* write and how *you* say it, is up to *you*, and no one else.

I am indebted to my wife for this definition of "plot." "'Plot'," she told me, "is something thought up by professors of English to explain something that writers do anyhow."

There may be authors who plot their stories; I have never met one. Oh, an author often outlines what he intends to write. He may refer to that outline as his "plot." But I've never heard of a working author who worried about such things as "catastrophe" and "denouement" and "incitement" and "complications" and "dramatic unities" and suchlike fancy notions—nor will he let his written outline be a Procrustean bed. He *can't.* Once those characters come alive, once he can hear their voices, they live their own lives, they do as they please—and they kick that outline to pieces.

This is not just my own experience; I have heard it over and over again from other working authors.

For example: A few weeks ago we were shipmates with Miss Katherine Ann Porter, author of "The Ship of Fools." That story is three

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or four times as long as most novels. I asked Miss Porter if she had planned to write so long a story.

She answered, "Oh, heavens, no! I had a contract to write three 20,000-word stories. I wrote the first two, then I had trouble with the third. I finally had to tell the publisher that I simply could not meet the contract for the third one—the characters were living their own lives and I had to let them do so."

Back to science fiction— More than ninety percent of all science fiction is trash. This is an example of Sturgeon's Law: ninety percent of everything is trash. Certainly this is true of the arts; take a look around you. Plays, motion pictures, poetry, music, sculpture, painting, writing—almost all of it is trash.

And this has always been true. For every Beethoven and Michelangelo and Rembrandt there were at least a dozen competitors doing well enough to make a living but whose work did not survive the test of time.

The same is true of science fiction. H.G. Wells wrote most of his science fiction three-quarters of a century ago—and those stories are still read: "The Invisible Man," "The War of the Worlds," "The Time Machine"—they are in every public library, available in book stores, often seen on newsstands. But what of the Frank Reade series, published at the same time, extremely popular and all of them science fiction? Who reads them today? Who has even heard of them?

We find the same range in today's science fiction, from comic strips of the Buck Rogers sort to novels such as George Orwell's "1984" and Aldous Huxley's "Brave New World."

How many of you have heard of one book or the other—either "1984" or "Brave New World"? Hands up, please.

Thank you. How many have read one or the other of these books? Good. How many have read both "1984" and "Brave New World"?

Thank you. I think the ghosts of Mr. Orwell and Mr. Huxley have reason to be pleased; one book was published twenty-five years ago, the other just over forty. With thirty thousand new titles published each year it is hard to remember even the best sellers of five or ten years ago. Yet these two books are still fresh, still influential. Each makes us think, and the grim warnings in each are even more urgent today than when first published.

And both are acceptable as English literature.

And both are hard-core science fiction.

What *is* science fiction?

It is not prophecy. Despite the endless list of things which have appeared in science fiction before they were physical realities—radar,

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submarines, television, automobiles, tanks, flying machines, spacecraft, communication satellites, organ transplants, giant computers, atomic bombs, nuclear power--you name it--science fiction is not prophecy.

Nor is it fantasy—even though critics ignorant of science often have trouble telling the two apart. I am not running down fantasy; I enjoy it and sometimes write it. But fantasy is not science fiction.

Science fiction is *realistic* fiction.

An analogous sort of nonfiction are the projections into the future called "scenarios," produced by such as the Hudson Institute, the Club of Rome, and the Rand Corporation. They start with the real world and attempt to extrapolate the possibilities of our future history.

They ask themselves questions of the "What if--?" sort. What if a dozen or so of the less stable nations get atomic weapons? What if we lose the Panama Canal? What if someone develops a Doomsday Machine and it winds up in the hands of a dictator as crazy as Hitler? What if we are cut off from oil from the Mideast? What if China or Russia attempts a preemptive strike at the other?

These futurologists work in teams, using computers and many other aids.

A serious science-fiction writer must attempt the same sort of thing, starting with the real world and asking "What if--?" But instead of being a team of political scientists and military experts and physicists and psychologists and demographers, he must do it alone . . . then turn his scenario into a story which will entertain a reader—thousands of readers—or he has failed no matter how logically he has extrapolated the present into the future.

To do this—to write speculative fiction and have it make sense—a science-fiction writer must start with a wide and solid foundation of facts. He needs thorough grounding in history—all countries, all cultures, ancient and modern. Geography--physical and political and economic--and this should be made real in his mind by travel, every continent and as many countries as possible. Law—he must learn as much as he can about law—from Hammurabi's Tablets on down through Justinian's Code and Blackstone and Code Napoleon and the Geneva Convention to the People's Courts in Communist countries and how they differ from our own.

Literature, languages—a man who knows only his own language doesn't really know any language. Science—he needs to be widely read in *all* sciences: biochemistry, meteorology, nuclear physics, descriptive astronomy, cosmogony and geogony, demography, anthropology, many more. He needs to know the philosophy of science, the nature of the scientific method, the

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difference between a natural law and a currently accepted theory. Mathematics—while even a professional mathematician can't keep up with all the new developments, nevertheless a serious writer of science fiction should be sufficiently at home with the language of science—mathematics—that neither Gödel's Proof nor the methods of statistical analysis are strangers to him, nor Boolean algebra, nor multidimensional non-Euclidean geometry.

Engineering and technology—a man can't make intelligent projections into the future unless he knows present-day technology.

The man I am describing does not exist. I defined the Renaissance Man, who made the entire field of human knowledge his sphere. But it has been a long time since that was possible. Technology alone, by a conservative estimate, now doubles every ten years and has been doing so at least since World War Two. No man can keep up with such a flood of data.

Is it any wonder that ninety percent of all science fiction is trash?

Or that respected novelists of the contemporary scene almost always trip in their own ignorance if they try science fiction?

The surprising thing is that a small percentage of science fiction is *not* trash.

The situation is not as hopeless as I described it. A man who spends most of his time studying can make a stab at keeping up with the enormous mass of knowledge needed as a foundation for writing intelligent science fiction. But he must *enjoy* studying—anything and everything. Card games don't tempt him; he turns on television only when there is something he *needs* to see; he may go to one movie a year. But he finds Mark's Handbook fascinating and the World Almanac delightful.

I have met most of the best writers of speculative fiction of this century. Without exception I have found them to be men of insatiable curiosity about *everything*. For example, one of them—still alive and writing; I heard him lecture a few weeks ago—read the Encyclopaedia Britannica all the way through while an undergraduate . . . then read it through again while taking his doctorate—which surprised me; he doesn't usually need to read anything twice.

In his spare time he supported himself—writing science fiction.

Is it surprising that this man's science fiction is always sensible, solidly grounded on the real world, no matter how wild his speculations may seem?

If you want to write and have insatiable curiosity, science fiction may be your dish.

Science fiction does have one superiority over all other forms of literature: It is the *only* branch of literature which even attempts to cope with the real problems of this

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fast and dangerous world. All other forms don't even try. In this complex world, science, the scientific method, and the consequences of the scientific method, are central to everything the human race is doing and to wherever we are going. If we blow ourselves up, we will do it by misapplication of science; if we manage to keep from blowing ourselves up, it will be through intelligent application of science. Science fiction is the only form of fiction which takes into account this central force in our lives and futures. Other sorts of fiction, if they notice science at all, simply deplore it—an attitude very chic in the anti-intellectual atmosphere of today. But we will never get out of the mess we are in by wringing our hands.

The clock is pushing me. Let me leave you with one flat-footed prediction of the science-fiction type. Like all scenarios this one has assumptions—variables treated as constants. The primary assumption is that World War Three will hold off long enough—ten, twenty, thirty years—for this prediction to work out . . . plus a secondary assumption that the human race will not find some other way to blunder into ultimate disaster.

Prediction: In the immediate future—by that I mean in the course of the naval careers of the class of '73—there will be nuclear-powered, constant-boost spaceships—ships capable of going to Mars and back in a couple of weeks—and these ships will be armed with Buck-Rogerish death rays. Despite all treaties now existing or still to be signed concerning the peaceful use of space, these spaceships will be used in warfare. Space navies will change beyond recognition our present methods of warfare and will control the political shape of the world for the foreseeable future. Furthermore—and still more important—these new spaceships will open the Solar System to colonization and will eventually open the rest of this galaxy.

I did *not* say that the United States will have these ships. The present sorry state of our country does not permit me to make such a prediction. In the words of one of our most distinguished graduates in his "The Influence of Sea Power on History": "Popular governments are not generally favorable to military expenditures, however necessary—"

Every military officer has had his nose rubbed in the wry truth of Admiral Mahan's observation. I first found myself dismayed by it some forty years ago when I learned that I was expected to maintain the ship's battery of USS *Roper* in a state of combat readiness on an allowance of less than a dollar a day—with World War Two staring down our throats.

The United States is capable of developing such spaceships. But the mood today does not favor it. So I am unable to predict that *we* will

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be the nation to spend the necessary R&D money to build such ships.

(Addressed to a plebe midshipman:)

Mister, how long is it to graduation?

Sixty-two days? Let's make it closer than that. I have . . . 7.59, just short of eight bells. Assuming graduation for ten in the morning that gives . . . 5,220,860 seconds to graduation . . . and I have less than 960 seconds in which to say what I want to say.

(To the Brigade at large:)

Why are you here?

(To a second plebe:)

Mister, why are *you* here?

Never mind, son; that's a rhetorical question. You are here to become a naval officer. That's why this Academy was founded. That is why all of you are here: to become naval officers. If that is *not* why *you* are here, you've made a bad mistake. But I speak to the overwhelming majority who understood the oath they took on becoming midshipmen and look forward to the day when they will renew that oath as commissioned officers.

But why would anyone want to become a naval officer?

In the present dismal state of our culture there is little prestige attached to serving your country; recent public opinion polls place military service far down the list.

It can't be the pay. No one gets rich on Navy pay. Even a four-star admiral is paid much less than top executives in other lines. As for lower ranks the typical naval officer finds himself throughout his career just catching up from the unexpected expenses connected with the last change of duty when another change of duty causes a new financial crisis. Then, when he is about fifty, he is passed over and retires . . . but he can't really retire because he has two kids in college and one still to go. So he has to find a job . . . and discovers that jobs for men his age are scarce and usually don't pay well.

Working conditions? You'll spend half your life away from your family. Your working hours? "Six days shalt thou work and do all thou art able; the seventh the same, and pound on the cable." A forty-hour week is standard for civilians—but not for naval officers. You'll work that forty-hour week but that's just a starter. You'll stand a night watch as well, and duty weekends. Then with every increase in grade your hours get longer—until at last you get a ship of your own and no longer stand watches. Instead you are on duty twenty-four hours a day . . . and you'll sign your night order book with: "In case of doubt, do not hesitate to call me."

I don't know the average week's work for a naval officer but it is closer to sixty hours than to forty. I'm speaking of peacetime, of course. Under war conditions it is

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whatever hours are necessary—and sleep you grab when you can.

Why would anyone elect a career which is unappreciated, overworked, and underpaid? It can't be just to wear a pretty uniform. There has to be a better reason.

As one drives through the bushveldt of East Africa it is easy to spot herds of baboons grazing on the ground. But not by looking at the ground. Instead you look up and spot the lookout, an adult male posted on a limb of a tree where he has a clear view all around him—which is why you can spot him; he has to be where he can see a leopard in time to give the alarm. On the ground a leopard can catch a baboon . . . but if a baboon is warned in time to reach the trees, he can outclimb a leopard.

The lookout is a young male assigned to that duty and there he will stay, until the bull of the herd sends up another male to relieve him.

Keep your eye on that baboon; we'll be back to him.

Today, in the United States, it is popular among self-styled "intellectuals" to sneer at patriotism. They seem to think that it is axiomatic that any civilized man is a pacifist, and they treat the military profession with contempt. "Warmongers," "Imperialists," "Hired killers in uniform"—you have all heard such sneers and you will hear them again. One of their favorite quotations is: "Patriotism is the last refuge of a scoundrel."

What they never mention is that the man who made that sneering wisecrack was a fat, gluttonous slob who was pursued all his life by a pathological fear of death.

I propose to prove that that baboon on watch is morally superior to that fat poltroon who made that wisecrack.

Patriotism is the most practical of all human characteristics.

But in the present decadent atmosphere patriots are often too shy to talk about it—as if it were something shameful or an irrational weakness.

But patriotism is *not* sentimental nonsense. Nor something dreamed up by demagogues. Patriotism is as necessary a part of man's evolutionary equipment as are his eyes, as useful to the race as eyes are to the individual.

A man who is *not* patriotic is an evolutionary dead end. This is not sentiment but the hardest sort of logic.

To prove that patriotism is a necessity we must go back to fundamentals. Take any breed of animal—for example, Tyrannosaurus rex. What is the most basic thing about him? The answer is that Tyrannosaurus rex is dead, gone, extinct.

Now take Homo sapiens. The first fact about him is that he is not extinct, he is alive.

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Which brings us to the second fundamental question: Will Homo sapiens stay alive? Will he survive?

We can answer part of that at once: Individually H. sapiens will *not* survive. It is unlikely that anyone here tonight will be alive eighty years from now; it approaches mathematical certainty that we will all be dead a hundred years from now as even the youngest plebe here would be a hundred and eighteen years old then—if still alive.

Some men do live that long but the percentage is so microscopic as not to matter. Recent advances in biology suggest that human life may be extended to a century and a quarter, even a century and a half—but this will create more problems than it solves. When a man reaches my age or thereabouts, the last great service he can perform is to die and get out of the way of younger people.

Very well, as individuals we all die. This brings us to the second half of the question: Does Homo sapiens *as a breed* have to die? The answer is: No, it is *not* unavoidable.

We have two situations, mutually exclusive: Mankind surviving, and mankind extinct. With respect to morality, the second situation is a null class. An extinct breed has *no* behavior, moral or otherwise.

Since survival is the *sine qua non*, I now define "moral behavior" as "behavior that tends toward survival." I won't argue with philosophers or theologians who choose to use the word "moral" to mean something else, but I do not think anyone can define "behavior that tends toward extinction" as being "moral" without stretching the word "moral" all out of shape.

We are now ready to observe the hierarchy of moral behavior from its lowest level to its highest.

The simplest form of moral behavior occurs when a man or other animal fights for his own survival. Do not belittle such behavior as being merely selfish. Of course, it is selfish . . . but selfishness is the bedrock on which all moral behavior starts and it can be immoral only when it conflicts with a higher moral imperative. An animal so poor in spirit that he won't even fight on his own behalf is already an evolutionary dead end; the best he can do for his breed is to crawl off and die, and not pass on his defective genes.

The next higher level is to work, fight, and sometimes die for your own immediate family. This is the level at which six pounds of mother cat can be so fierce that she'll drive off a police dog. It is the level at which a father takes a moonlighting job to keep his kids in college—and the level at which a mother or father dives into a flood to save a drowning child . . . and it is still moral behavior even when it fails.

The next higher level is to work,

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fight, and sometimes die for a group larger than the family unit—an extended family, a herd, a tribe—and take another look at that baboon on watch; he's at that moral level. I don't think baboon language is complex enough to permit them to discuss such abstract notions as "morality" or "duty" or "loyalty"—but it is evident that baboons *do* operate morally and *do* exhibit the traits of duty and loyalty; we see them in action. Call it "instinct" if you like—but remember that assigning a name to a phenomenon does not explain it.

But that baboon behavior can be explained in evolutionary terms. Evolution is a process that never stops. Baboons who fail to exhibit moral behavior do not survive; they wind up as meat for leopards. Every baboon generation has to pass this examination in moral behavior; those who bilge it don't have progeny. Perhaps the old bull of the tribe gives lessons . . . but the leopard decides who graduates—and there is no appeal from his decision. We don't have to understand the details to observe the outcome: Baboons behave morally—for baboons.

The next level in moral behavior higher than that exhibited by the baboon is that in which duty and loyalty are shown toward a group of your own kind too large for an individual to know all of them. We have a name for that. It is called "patriotism."

Behaving on a still higher moral level were the astronauts who went to the Moon, for their actions tend toward the survival of the entire race of mankind. The door they opened leads to the hope that H. sapiens will survive indefinitely long, even longer than this solid planet on which we stand tonight. As a direct result of what they did, it is now possible that the human race will *never* die.

Many shortsighted fools think that going to the Moon was just a stunt. But the astronauts knew the meaning of what they were doing, as is shown by Neil Armstrong's first words in stepping down onto the soil of Luna: "One small step for a man, one giant leap for mankind."

Let us note proudly that eleven of the Astronaut Corps are graduates of this, our school.

And let me add that James Forrestal was the *first* high-ranking Federal official to come out flatly for space travel.

I must pause to brush off those parlor pacifists I mentioned earlier . . . for they contend that *their* actions are on this highest moral level. They want to put a stop to war; they say so. Their purpose is to save the human race from killing itself off; they say that too. Anyone who disagrees with them must be a bloodthirsty scoundrel—and they'll tell you that to your face.

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I won't waste time trying to judge their motives; my criticism is of their mental processes: Their heads aren't screwed on tight. They live in a world of fantasy.

Let me stipulate that, if the human race managed its affairs sensibly, we could do without war.

Yes—and if pigs had wings, they could fly.

I don't know what planet those pious pacifists are talking about but it can't be the third one out from the Sun. Anyone who has seen the Far East—or Africa—or the Middle East—knows or certainly should know that there is *no* chance of abolishing war in the foreseeable future. In the past few years I have been around the world three times, traveled in most of the Communist countries, visited many of the so-called emerging countries, plus many trips to Europe and to South America; I saw nothing that cheered me as to the prospects for peace. The seeds of war are everywhere; the conflicts of interest are real and deep, and will not be abolished by pious platitudes.

The best we can hope for is a precarious balance of power among the nations capable of waging total war—while endless lesser wars break out here and there.

I won't belabor this. Our campuses are loaded with custard-headed pacifists but the yard of the Naval Academy is one place where I will not encounter them. We are in agreement that the United States still needs a navy, that the Republic will always have need for heroes—else you would not be here tonight and in uniform.

Patriotism—moral behavior at the national level. *Non sibi sed Patria.* Nathan Hale's last words: "I regret that I have but one life to give for my country." Torpedo Squadron Eight making its suicidal attack. Four chaplains standing fast while the water rises around them. Thomas Jefferson saying, "The Tree of Liberty must be refreshed from time to time with the blood of patriots—" A submarine skipper giving the order "Take her *down!*" while he himself is still topside. Jonas Ingram standing on the steps of Bancroft Hall and shouting, "The Navy has no place for good losers! The Navy needs tough sons of bitches who can go out there and *win!*"

Patriotism—an abstract word used to describe a type of behavior as harshly practical as good brakes and good tires. It means that you place the welfare of your nation ahead of your own even if it costs you your life.

Men who go down to the sea in ships have long had another way of expressing the same moral behavior tagged by the abstract expression "patriotism." Spelled out in simple Anglo-Saxon words "patriotism" reads "Women and children first!"

And that is the moral result of realizing a self-evident biological fact: Men are expendable; women

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and children are not. A tribe or a nation can lose a high percentage of its men and still pick up the pieces and go on . . . as long as the women and children are saved. But if you fail to save the women and children, you've had it, you're done, you're *through!* You join Tyrannosaurus rex, one more breed that bilged its final test.

I must amplify that. I know that women can fight and often have. I have known many a tough old grandmother I would rather have at my side in a tight spot than any number of pseudo-males who disdain military service. My wife put in three years and a butt active duty in World War Two, plus ten years reserve, and I am proud—very proud!—of her naval service. I am proud of every one of our women in uniform; they are a shining example to us men.

Nevertheless, as a mathematical proposition in the facts of biology, children, and women of child-bearing age, are the ultimate treasure that we must save. Every human culture is based on "Women and children first"—and any attempt to do it any other way leads quickly to extinction.

Possibly extinction is the way we are headed. Great nations have died in the past; it can happen to us.

Nor am I certain how good our chances are. To me it seems self-evident that any nation that loses its patriotic fervor is on the skids. Without that indispensable survival factor the end is only a matter of time. I don't know how deeply the rot has penetrated—but it seems to me that there has been a change for the worse in the last fifty years. Possibly I am misled by the offensive behavior of a noisy but unimportant minority. But it does seem to me that patriotism has lost its grip on a large percentage of our people.

I hope I am wrong . . . because if my fears are well-grounded, I would not bet two cents on this nation's chance of lasting even to the end of this century.

But there is no way to force patriotism on anyone. Passing a law will not create it, nor can we buy it by appropriating so many billions of dollars.

You gentlemen of the Brigade are most fortunate. You are going to a school where this basic moral virtue is daily reinforced by precept and example. It is not enough to know what Charlie Noble does for a living, or what makes the wildcat wild, or which BatDiv failed to splice the main brace and why—nor to learn matrix algebra and navigation and ballistics and aerodynamics and nuclear engineering. These things are merely the working tools of your profession and could be learned elsewhere; they do not require four years together by the Bay where Severn joins the tide.

What you do have here is a tra-

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dition of service. Your most important classroom is Memorial Hall. Your most important lesson is the way you feel inside when you walk up those steps and see that shot-torn flag framed in the arch of the door: "Don't Give Up the Ship."

If you feel nothing, you don't belong here. But if it gives you gooseflesh just to see that old battle flag, then you are going to find that feeling increasing every time you return here over the years . . . until it reaches a crescendo the day you return and read the list of your own honored dead—classmates, shipmates, friends—read them with grief and pride while you try to keep your tears silent.

The time has come for me to stop. I said that "patriotism" is a way of saying "Women and children first." And that no one can force a man to feel this way. Instead he must embrace it freely. I want to tell about one such man. He wore no uniform and no one knows his name, nor where he came from; all we know is what he did.

In my home town sixty years ago when I was a child, my mother and father used to take me and my brothers and sisters out to Swope Park on Sunday afternoons. It was a wonderful place for kids, with picnic grounds and lakes and a zoo. But a railroad line cut straight through it.

One Sunday afternoon a young married couple were crossing these tracks. She apparently did not watch her step, for she managed to catch her foot in the frog of a switch to a siding and could not pull it free. Her husband stopped to help her.

But try as they might they could not get her foot loose. While they were working at it, a tramp showed up, walking the ties. He joined the husband in trying to pull the young woman's foot loose. No luck—

Out of sight around the curve a train whistled. Perhaps there would have been time to run and flag it down, perhaps not. In any case both men went right ahead trying to pull her free . . . and the train hit them.

The wife was killed, the husband was mortally injured and died later, the tramp was killed—and testimony showed that neither man made the slightest effort to save himself.

The husband's behavior was heroic . . . but what we expect of a husband toward his wife: his right, and his proud privilege, to die for his woman. But what of this nameless stranger? Up to the very last second he could have jumped clear. He did not. He was still trying to save this woman he had never seen before in his life, right up to the very instant the train killed him. And that's all we'll ever know about him.

This is how a man dies.

This is how a *man* . . . lives! ■

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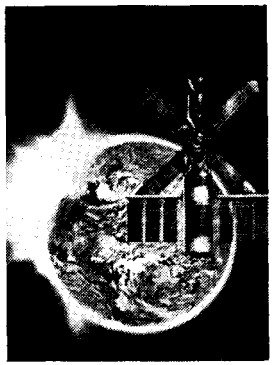

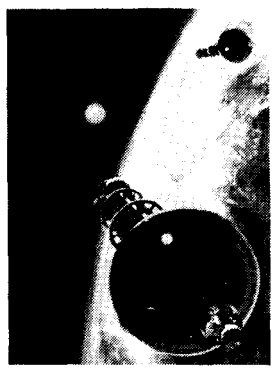

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